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ADAPTING AN EVIDENCE-BASED INTERVENTION TO IMPROVE SOCIAL AND  
BEHAVIORAL COMPETENCE IN HEAD START CHILDREN: EVALUATING THE  
EFFECTIVENESS OF TEACHER-CHILD INTERACTION TRAINING

by

Christopher Campbell

A DISSERTATION

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the Graduate College at the University of Nebraska  
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for the Degree of Doctor of Philosophy

Major: Psychology

Under the Supervision of Professor David J. Hansen

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July, 2011

ADAPTING AN EVIDENCE-BASED INTERVENTION TO IMPROVE SOCIAL AND  
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Christopher Campbell, Ph.D.

University of Nebraska, 2011

Advisor: David J. Hansen

Empirical studies indicate that as many as 35% of Head Start children meet the diagnostic criteria for oppositional defiant disorder or conduct disorder (Webster-Stratton & Hammond, 1998). Without early intervention, these problematic behaviors may become stable across childhood and adolescence (Campbell, 1995), increasing the likelihood of academic problems, school drop-out, substance abuse, delinquency, and violence (Snyder, 2001). Head Start children are also more likely to enter school with significant deficits in social-emotional readiness, with as many as 40% demonstrating delays in social competencies and communication abilities (Kaiser et al., 2000).

Longitudinal research indicates that early gaps in social competence for socioeconomically challenged children persist and even widen as children progress in school (Huffman, Mehlinger, & Kerivan, 2001), and conduct problems become increasingly resistant to change over time (Webster-Stratton, Reid, & Hammond, 2001). Thus, intervention efforts to ensure children's competence across social and behavioral domains must begin as early as possible; ideally within the preschool years (Mashburn & Pianta, 2006).

The primary objective of this study was to evaluate the effectiveness of an empirically-based and short-term teacher intervention - Teacher-Child Interaction

Training Preschool Program (TCIT-PRE). The TCIT-PRE program was designed to improve social and behavioral competence for preschool children, and increase efficacy and satisfaction for preschool teachers. Participants were six teachers and 101 children (and their caregivers) from three Head Start Centers. Overall, research findings indicated that: (a) Head Start teachers were able to acquire and master the TCIT-PRE skills with individual and small groups of children during training sessions; (b) TCIT-PRE skills acquired in the training room generalized to the classroom environment; (c) the utilization of TCIT-PRE skills by Head Start teachers was associated with improved social and behavioral competence for Head Children, both in the classroom and at home; and (d) the TCIT-PRE program was well received by Head Start teachers, many of whom reported increased efficacy and satisfaction after completing the program. Implications for early childhood intervention programs and future directions for the TCIT-PRE program are discussed.

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## **Chapter 1: Introduction and Literature Review**

Recent research initiatives have suggested that the number of children experiencing behavioral difficulties in school settings has increased (U.S. Department of Education, 2007), and research with Head Start populations suggests that between 16% and 30% of children exhibit ongoing conduct problems for teachers (Kupersmidt, Bryant, & Willoughby, 2000; Lopez, Tarullo, Forness, & Boyce, 2000). In fact, as many as 35% of Head Start Children meet the diagnostic criteria for oppositional defiant disorder (ODD) or conduct disorder (CD; Webster-Stratton & Hammond, 1998). Unfortunately, projections also suggest that fewer than 10% of the children who need treatment for ODD and CD actually receive services (Kazdin & Kendall, 1998), and less than half of those children receive empirically supported interventions (Chambless & Hollon, 1998). Further, children with problematic behaviors are at high risk for academic problems and failure, school absences, teacher conflict, expulsion, and eventually school drop-out, delinquency, substance abuse, and violence (e.g., Gilliam, 2005; Snyder, 2001; Webster-Stratton & Taylor, 2001). Moreover, evidence suggests that conduct problems become increasingly resistant to change over time (Webster-Stratton, Reid, & Hammond, 2001) and, without early intervention, oppositional or conduct problems in young children may become a crystallized pattern of behavior by eight years of age (Eron, 1990).

Empirical research also suggests that Head Start children are more likely to enter school with significant deficits in social-emotional readiness, with over 40% demonstrating delays in social competencies and communication abilities (Kaiser et al., 2000). Without intervention, initial social skills deficits can contribute to long-term



problems in peer relations and acceptance, including social rejection and isolation (Lytton, 2000). Consequently, peer disapproval and social isolation may lead to feelings of loneliness, insecurity, anger, and depression (Boivin, Hymel, & Bukowski, 1995), and children with an inability to express themselves may resort to disruptive and/or aggressive solutions to problems (Fabes, Gaertner, & Popp, 2006).

Researchers, practitioners, and policy makers agree that each child's success in school is a critical goal for the 21st century (Justice, Cottone, Mashburn, & Rimm-Kaufman, 2008), and emphasize that success requires competence beyond traditional academic domains, including social, emotional, and behavioral competence (La Paro & Pianta, 2000; National Education Goals Panel, 1997). To ensure children's competencies across these interconnected domains, efforts must begin early, ideally within the preschool years (Mashburn & Pianta, 2006).

### **Overview of School Readiness**

With more than 909,000 children enrolled in Head Start programs nationwide (Williamson, 2007), Head Start has been referred to as the nation's "premier" federally sponsored early childhood education program developed to reduce socioeconomic disparities in school readiness (U.S. Department of Health and Human Services, 2005). While the term *readiness* may be the most frequently used label in discussions of early childhood education and outcomes (Meisels, 1999), consensus about what constitutes school readiness remains a matter of scientific and public debate (Ladd, Herald, & Kochel, 2006). Increasingly, school readiness is defined as the "state of child *competencies* at the time of school entry that are important for later success" (Snow,

2006, p. 9). Traditionally, competencies have focused on academic/cognitive domains, including: (a) general knowledge; (b) intellectual development; (c) language development; (d) literacy; and (e) perceptual motor skills (La Paro & Pianta, 2000). Although researchers have long considered intelligence to be a key predictor of school performance, recent evidence suggests that social and behavioral competencies are *independent* and *important* predictors of future academic achievement (Webster-Stratton, Reid, & Stoolmiller, 2008), even after controlling for variations in cognitive abilities and family resources (e.g., Raver & Zigler, 1997). Thus, competencies are moving beyond traditional academic abilities, to include a variety of skills within the social and behavioral domains such as assertiveness, leadership, independence, peer relations, interactions with teachers, and overall classroom behavior (La Paro & Pianta, 2000).

**Behavior competence and school readiness.** Children demonstrating behavioral competence at the preschool level tend to: (a) exhibit prosocial behaviors with peers (e.g., share, comfort an upset peer; invite others to play); (b) refrain from aggressive, disruptive, or destructive behaviors; (c) control emotional impulses; (d) exhibit flexibility to changing situational demands; (e) refrain from disrupting peer/classroom activities; and (f) comply with commands and directions from authority figures (e.g., Ladd, Buhs, & Seid, 2000; Ladd et al., 2006; Smeekens, Riksen-Walraven, & van Bakel, 2008). While it is typical for preschool children to exhibit externalizing behavior problems, a subset will display a pervasive and persistent pattern that is outside the developmental norm and impairs functioning (Campbell, Shaw, & Gilliom, 2000). Importantly, research suggests that poor school readiness and increased conduct problems are even more prevalent in

classrooms with high percentages of low-income children (Webster-Stratton et al., 2008). For example, recent findings indicate that Head Start children are more physically aggressive than matched peers in other child care settings (Kupersmidt et al., 2000). In fact, Head Start teachers have reported that up to 40% of their students display one or more problematic behaviors on a daily basis and many students demonstrate six or more problematic behaviors each day (Willoughby, Kupersmidt, & Bryant, 2001). Research findings with Head Start populations also suggests that as many as 30% of preschool children exhibit ongoing conduct problems for teachers (e.g., Lopez et al., 2000), and early problematic behavior patterns are not transient for many children (Kaufmann, 2005). Thus, without early intervention, children with conduct problems are at an increased risk for academic failure, teacher conflict, and adjustment problems (Birch & Ladd, 1997).

**Social competence and school readiness.** Socially competent children at the preschool level tend to: (a) be friendly and cheerful; (b) demonstrate good communication skills, particularly sharing information about oneself and one's feelings; (c) engage in pretend play; (d) share toys in a reciprocal manner; (e) listen to social partners; (f) make topic-relevant comments; (g) ask questions to elicit information from others; (h) recognize the turn-taking sequences involved in conversation; and (i) regulate affect and behavior when excited or upset (e.g., Bierman & Erath, 2006; Fabes et al., 2006; Rubin, Bukowski, & Parker, 2006). For children, the development and implementation of social and communication skills provides the foundation for academic achievement during the first years of schooling (Raver, 2002), and later successful life

adjustment (Rubin et al., 2006). Peer group interactions and friendships in childhood serve as building blocks for future relationships, as positive peer relationships provide companionship, entertainment, and unique opportunities for interpersonal learning (Hartup, 1996). Social interactions with peers also increase school readiness by promoting academic adjustment and positive learning experiences (e.g., peer modeling, engagement, and encouragement; Caprara et al., 2000).

In the absence of effective social skills, young children are: (a) less likely to participate in the classroom; (b) less accepted by peers and teachers; (c) provided with less instruction (and positive feedback) from teachers; (d) less likely to enjoy school; and (e) at increased risk for academic underachievement (Raver & Knitzer, 2002). Further, initial social skills deficits can contribute to long-term problems in peer acceptance, as relationships between children and their social environments are bidirectional and transactional in nature (Lytton, 2000). That is, a child's inability to interact socially increases the likelihood of rejection by other children. In turn, rejected or ostracized children may spend more time playing alone or interacting with younger and less skillful peers, further restricting opportunities to learn age-appropriate social skills (Coie, 1990). Peer disapproval and social isolation may lead to feelings of loneliness, insecurity, anger, and alienation (Boivin et al., 1995), which subsequently may contribute to a broad array of psychological problems (e.g., anxiety, depression) in childhood (Campbell, Hansen, & Nangle, 2010). Moreover, across the lifespan, problematic social interactions and social skills deficits are associated with a wide variety of psychological disorders (e.g., mood, anxiety, personality) and even severe mental illness (Campbell et al., 2010).

## **Early Intervention for Social and Behavioral Problems**

Of the approximately 12 million children under six years of age attending early childhood programs like Head Start (Quesenberry, 2007), at least one in ten will experience some form of social-emotional or behavioral disorder beyond typical developmentally appropriate expressions (President's New Freedom Commission of Mental Health, 2003). Over the past two decades, developmental and clinical research continually suggests that poverty poses significant threats to young children's social, emotional, and behavioral development (e.g., Aber, Jones, & Cohen, 2000; Morales & Guerra, 2006). A review of the literature by Qi and Kaiser (2003) found that children living in poverty are especially vulnerable toward behavior problems, exhibiting challenging behaviors at rates much higher than the general population. Likewise, a nationally representative sample of over 22,000 kindergarten children (Early Child Longitudinal Study-Kindergarten) suggested that exposure to multiple poverty-related risks (e.g., single income, lower maternal education) increases the odds that children will demonstrate less social competence and more behavioral problems when compared to more economically advantaged children (West, Denton, & Reaney, 2001). These findings are increasingly important as poverty rates in the United States have recently risen, with 18% of our nation's children currently living in families earning less than \$22,000 a year (Douglas-Hall & Chau, 2008).

While socioeconomic disadvantage does not necessarily lead to social problems (Webster-Stratton et al., 2008), low income is a significant risk factor for the social and emotional problems, early onset of conduct problems, and academic underachievement

(Keenan, Shaw, Walsh, Delliquadri, & Giovannelli, 1997). Because Head Start eligibility requirements state that families need to be at or below 100% of the national poverty level (Federal Poverty Guidelines, 2011), many children attending Head Start programs are at an increased risk for academic and behavioral problems. Recent findings suggest that school-based prevention and intervention programs, that actively involve teachers, might be particularly promising for populations less likely to seek traditional mental health services (Atkins et al., 2006; Breitenstein et al., 2007).

Empirical research suggests that 50% or more of preschoolers with clinical levels of disruptive behavior display problematic levels of challenging behaviors four years later (Shaw, Gilliom, & Giovannelli, 2000). Moreover, behavior problems beginning in the preschool years are associated with a chronic trajectory, often with life-long behavioral challenges (Moreland & Dumas, 2008). Equally important, longitudinal research indicates that early gaps in social competence for socioeconomically challenged children persist and even widen across time (Huffman, Mehlinger, & Kerivan, 2001). Thus, early interventions are essential as increased improvements in social and behavioral adjustment are associated with decreased age of the child at the time of intervention (Kaiser & Hester, 1997).

In a related manner, empirical findings indicate that children who have problematic relationships with their teachers (characterized by high levels of conflict), show an array of academic and behavioral difficulties which may lead to problems in overall school adjustment (e.g., Justice et al., 2008). Further, children with conduct problems are also more likely to be disliked by teachers, receive less academic or social

support, and obtain less positive feedback from teachers (e.g., Arnold et al., 1999). As a result, children with conduct problems find school less enjoyable, have lower school attendance, and are at an increased risk for underachievement, academic failure, and future adjustment problems (Birch & Ladd, 1997; Webster-Stratton et al., 2008). Notably, children who are at the highest risk for problematic behaviors are often taught by teachers who are the least prepared to handle challenging behavior (Webster-Stratton et al., 2008). For example, research suggests that teachers serving low-income children use more harsh and ineffective behavior management strategies when compared to teachers of middle-income children (e.g., Stage & Quiroz, 1997).

Due to the ongoing, intensive needs of children with problematic behaviors, placing children in Head Start programs, child care centers, and other early childhood environments is not enough (Quesenberry, 2007). Most often, children with complex behavior problems require systematic behavioral approaches that go beyond typical behavior management strategies (Sandall & Schwartz, 2002). However, in a national survey by Bruder (2004), less than 50% of U.S. states described their early childhood educators as adequately prepared for their roles in early intervention. Therefore, it is not surprising that teachers often describe disruptive behaviors as one of the single greatest challenges they face in providing quality programming (Arnold, McWilliams, & Arnold, 1998), and identify behavioral intervention training as one of their most significant training needs (Joseph, Strain, & Skinner, 2004).

Repeated conflict and disciplinary problems with children who are disruptive (or difficult to manage) has been linked to increased emotional distress/exhaustion,

occupational dissatisfaction, and “burnout” for teachers (Cazares, 2009; Hastings & Bham, 2003; Morris-Rothschild & Brassard, 2006). The combination of challenging child behaviors and feelings of frustration (and low self-efficacy) are commonly reported reasons why teachers leave the profession (Brownell & Smith, 1992). In fact, many teachers are resigning within five years due to increasing occupational (and societal) demands (Balles, 2008). Thus, teacher interventions are necessary to reduce the number of early childhood educators leaving the profession (Quesenberry, 2007), and improve the critical shortages of teachers available to work with young children who exhibit social delays and challenging behaviors (Klein & Gilkerson, 2000).

**School-based prevention programs for school-age populations.** Increasingly, several multifaceted and longitudinal school-based prevention programs have demonstrated promise for reducing risk factors related to academic failure and conduct disorders in school-age children (Webster-Stratton et al., 2008). For instance, the Montreal Longitudinal Experimental Study (Tremblay et al., 1996) and the FAST TRACK project (Conduct Problems Prevention Research Group, 2002) offered comprehensive interventions to highly aggressive elementary grade school children that resulted in long-term benefits in school performance and reductions in antisocial behavior (e.g., burglary, theft). Another program, First Step to Success (FSS) is a standardized, collaborative, home-school intervention designed for at-risk children (kindergarten through second grade) with early signs of antisocial behavior (Walker, Stiller, Severson, Feil, & Golly, 1998). The FSS intervention involves teachers, parents, and peers of at-risk children and the program is comprised of three, interrelated modules: (1) screening and



detection for at-risk youth; (2) a school intervention adapted from the CLASS (Contingencies for Learning Academic and Social Skills) program (Hops & Walker, 1988); and (3) a home-based parenting program (Walker et al., 1998). Empirical research with the FSS program has shown increased academic engagement, improved peer relationships, and decreased aggressive behavior (e.g., Epstein & Walker, 2002; Walker et al., in press).

Other school-aged (grades 1-5) prevention projects that have demonstrated promising findings for children in high-risk neighborhoods and schools include the Linking the Interests of Families and Teachers program (LIFT; Reid, Eddy, Fetrow, & Stoolmiller, 1999) and the Seattle Social Development Project (Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999). Post-treatment, children in the LIFT program exhibited lower levels of both classroom and playground aggression (Reid et al., 1999). Similarly, children who participated in the Seattle Social Development Project demonstrated fewer violent acts, as well as decreased alcohol use, sexual activity, and pregnancy by 18 years of age (Hawkins et al., 1999).

In 1997, the U.S. Department of Education provided funding for the National Technical Assistance Center on Positive Behavioral Interventions and Supports (PBIS) to organize and disseminate behavioral interventions and practices that could be accessed by all schools (Sugai & Horner, 2009a). This National Center created the School-Wide Positive Behavior Support (SWPBS) approach which has demonstrated increased efficacy in addressing the complex behavioral needs of K-12 school populations (e.g., increased academic achievement at both individual and school-wide levels; Sugai &

Horner, 2009a). The SWPBS model utilizes a prevention framework that is described as the “organization of teaching and learning environments for the effective, efficient, and relevant adoption and sustained use of research-based behavioral interventions for all students, especially those with serious behavior challenges” (Sugai & Horner, 2009a, p. 228).

The SWPBS model has three core features or components. The first component, *four element integration*, refers to: (1) data collection and analysis of the problem and context; (2) the establishment of outcomes/objectives based on the data and implementation setting, (3) the selection of efficacious interventions, and (4) the implementation of system/organizational supports. The second component, *evidence-based behavioral interventions*, refers to the utilization of the smallest number of empirically-supported interventions to create changes, and selected interventions are categorized across five school-based areas (i.e., school-wide, classroom, non-classroom, family, and individual student). The third and final component is a *continuum of behavior support* that is a three-tiered prevention strategy ranging from a primary tier (for all students, staff, and families), to a tertiary tier for individuals who need individualized and intensive interventions (for more details on the SWPBS program, see Sailor, Dunlap, Sugai, & Horner, 2009; Sugai & Horner, 2009b; or visit [www.pbis.org](http://www.pbis.org)). Although research on SWPBS within educational and service environments continues to grow, less is known about the effectiveness of SWPBS with children under the age of six (Quesenberry, 2007).

**School-based prevention programs for preschool children.** Each of the interventions described above have evidenced some level of empirical support, however, all of the programs were designed for children 5 years of age or older. School-based interventions for children ages 3 to 6 years of age are relatively scarce, particularly for economically disadvantaged children (Webster-Stratton et al., 2008). Because ratings of school readiness (conducted at Kindergarten entry) serve as important and reliable predictors of long-term schooling outcomes, early interventions are critical for at-risk preschoolers (e.g., Snow, 2006). Without early intervention, children older than eight years of age become less responsive to treatment and their problematic behaviors are more likely to become a persistent disorder (Bullis & Walker, 1994).

Recently, Domitrovich and colleagues (2007) adapted the Promoting Alternative THinking Strategy program (PATHS; Kusché & Greenberg, 1994) for preschool populations. The PATHS program is a “comprehensive curriculum intended to prevent or reduce behavior and emotional problems in young children and enhance children’s social emotional competence” (Domitrovich, Cortes, & Greenberg, 2007, p. 70). More specifically, the program was designed to improve emotional knowledge, inhibitory control, attention, and problem-solving abilities. The PATHS program has demonstrated improved emotional knowledge skills and social competency ratings by teachers and peers. However, the intervention did not produce expected changes in inhibitory control, sustained attention, or problem-solving behaviors (Domitrovich et al., 2007).

More recently, multi-component preschool programs which involve parent training, teacher training, child skills training, and/or mental health support have gained

empirical support. For instance, research from the Chicago School Readiness Project (CSRP; Raver et al., 2009) demonstrated promising results for reductions in behavior problems and increased school readiness for low-income preschoolers. The CSRP is a multicomponent, cluster-randomized efficacy trial designed to provide teachers with training and support to effectively manage disruptive behaviors and increase emotional and behavioral adjustment in Head Start children (Raver et al., 2011). The CSRP was recently delivered to 35 Head Start classrooms ( $N = 602$  children) and teachers in the project learned techniques such as implementing clear rules/routines, rewarding positive behavior, and redirecting negative behavior. Children enrolled in the CSRP intervention demonstrated higher attention skills, greater impulse control, and better performance on executive functioning tasks when compared to control group counterparts. However, children in the CSRP did not exhibit expected improvements on tasks that required executive control (Raver et al., 2011). Even so, children enrolled in the CSRP intervention had significant improvements in vocabulary, letter-naming, and math skills when compared to the control group. Although the CSRP has demonstrated a variety of success, the authors acknowledge that the intervention was expensive to provide, long-term maintenance of treatment gains are unknown, and they are currently unable to “unpack” which treatment components led to the largest reductions in problematic behaviors (Raver et al., 2009, p. 314).

Webster-Stratton and colleagues have demonstrated wide success with Head Start children, parents, and teachers for many years with their Incredible Years programs. Recently, Webster-Stratton and colleagues (2008) evaluated their Incredible Years

Teacher Training program in 120 Head Start classrooms across the Seattle area. Findings revealed that teachers in the intervention condition were significantly different from control condition teachers on four out of five interaction variables (i.e., Harsh/Critical, Warm/Affectionate, Inconsistent/Permissive, and Social/Emotional; no differences were found on the Effective Discipline variable). Teachers in the Incredible Years program also used more social and emotional teaching strategies, and reported more parental involvement than teachers in the control condition (Webster-Stratton et al., 2008). Children in the treatment condition demonstrated significant improvements in emotional self-regulation, social competence, and conduct problems compared to students in the control group (Webster-Stratton et al., 2008). While findings from research on the Incredible Years Teacher Training program are encouraging, limitations include: (a) training courses and materials are expensive, particularly for individuals outside of the Seattle area; (b) trainings for both the teacher instructors and the early childhood educators are delivered in a group format (e.g., 12-18 individuals for teacher trainings) which precludes opportunities to address individual teacher needs or live coaching within the context of teacher-child interactions; and (c) trainings are offered infrequently (C. Hernandez, personal communication, May 8, 2009).

### **Selecting an Empirically-Supported Treatment for Adaptation in Head Start**

#### **Settings**

When identifying an intervention for use in the present study, several important factors, including intervention-related costs and overall efficacy in meeting children's needs, were considered. As noted above, many of the current school-based programs are

expensive to provide and may prove cost prohibitive for many Head Start and early education programs. Based on the limited number of cost-effective, highly efficacious school-based interventions available for preschoolers, the current literature was consulted for empirically-supported parent training programs for children with social and behavior problems.

Recently, Shriver and Allen (2008) reviewed the parenting program literature for children with behavior problems, and identified four empirically-supported programs that represented the best available research. The four programs selected, in no particular order, were: (a) Living with Children (Patterson, 1976); (b) The Incredible Years (Webster-Stratton, 1984); (c) Helping the Noncompliant Child (McMahon & Forehand, 2003); and (d) Parent-Child Interaction Therapy (Eyberg & Child Study Lab, 1999; Hembree-Kigin & McNeil, 1995). While each program has numerous strengths and a great deal of empirical support, Shriver and Allen (2008) offered limitations for each program, including: (a) Living with Children (Patterson, 1976) – the program lacks well-established, refined, and easy-to-follow guidance on how to teach parents basic concepts and skills, requiring high levels of contact between the practitioner and parents that may seem intrusive by parents and prohibitive by practitioners; (b) The Incredible Years – Basic Program (Webster-Stratton, 1984) – the program training and materials are expensive which may prove prohibitive for many practitioners; and (c) Helping the Noncompliant Child (McMahon & Forehand, 2003) – the manual is focused more on what to teach rather than how to teach skills.

Shriver and Allen (2008) offered minimal negative comments for the Parent-Child Interaction Therapy program (PCIT; Eyberg & Child Study Lab, 1999; Hembree-Kigin & McNeil, 1995), stating that PCIT is immediately appealing to practitioners, cost-effective, and widely disseminated. In addition to consistently positive reviews and findings (further described below), PCIT was selected for adaptation in the present study for several reasons, including PCIT: (a) is a short-term program that is typically delivered in 14 sessions; (b) was originally designed for children two to seven years of age; (c) has demonstrated success across a broad spectrum of behavioral, emotional and/or developmental problems; (d) has been adapted to meet the needs of special populations across a variety of settings; (e) provides trainees with easy to learn skills; and (f) utilizes a mastery criteria for skills that is easily defined and observable.

### **Parent-Child Interaction Therapy (PCIT)**

**Theoretical bases and influences.** The PCIT intervention is a manualized, empirically-supported treatment originally designed for children with disruptive behavior disorders between two to seven years of age (Eyberg & Child Study Lab, 1999; Hembree-Kigin & McNeil, 1995; McNeil & Hembree-Kigin, 2010; PCIT International Manual, 2011). Utilizing Constance Hanf's (1969) two-stage model, PCIT blends developmental theory, social learning theory, behavioral principles, and traditional play therapy. During the first phase of treatment (Child-Directed Interaction), children are encouraged to lead a play activity while their caregivers observe and comment on their child's positive behaviors and ignore inappropriate behaviors (Herschell & McNeil, 2005). In the second phase of the intervention (Parent-Directed Interaction), caregivers

learn how to deliver clear, direct commands to reward child compliance and utilize time-out strategies as a consequence for child noncompliance (Herschell & McNeil, 2005). Since its development, variants of the Hanf model have been successfully applied to treatment programs designed to address oppositional behavior (e.g., *Helping the Noncompliant Child* by McMahon & Forehand, 2003; *The Incredible Years* by Webster-Stratton, 2005).

However, PCIT can be differentiated from other Hanf-derived programs due to its emphasis on improving the quality of the parent-child relationship (Foote, Eyberg, & Schuhmann, 1998), and reliance on developmental psychology literature (Eyberg, Schuhman, & Rey, 1998). For instance, PCIT assists parents in adopting an authoritative parenting style (Baumrind, 1967), which incorporates a young child's needs of warmth, psychological autonomy, and limit setting to achieve optimal outcomes (Gray & Steinberg, 1999). The PCIT program also draws from social learning theory and work by Gerald Patterson and his colleagues at the Oregon Social Learning Center, asserting that problematic behaviors can be inadvertently established and maintained by problematic parent-child relationships (Patterson, 1976).

**Therapy structure and format.** As stated above, the PCIT program is delivered in two phases (i.e., the Child-Directed and Parent-Directed phases). Each phase begins with a didactic, “teaching” session where PCIT skills are introduced, modeled, and role-played with the caregiver(s). These teaching sessions are followed by “coaching” sessions where therapists use prompting, modeling, reinforcement, and selective attention to shape each caregiver's utilization of PCIT skills during live parent-child interactions



(Brinkmeyer & Eyberg, 2003). PCIT is typically conducted with a caregiver and their child in weekly, 1-hour sessions, and the average length of the PCIT intervention is 14 sessions (i.e., one teaching session and approximately six coaching sessions per treatment phase; Callahan, Stevens, & Eyberg, 2010).

The primary goal of the first phase of PCIT (the Child-Directed Interaction or CDI phase) is to develop and strengthen positive caregiver-child relationships. In the CDI phase, caregivers learn to implement techniques described as *behavioral play therapy*, which includes skills such as differential social attention. That is, caregivers are taught how to attend to appropriate child behaviors (e.g., sharing, using manners, playing quietly) and actively ignore attention-seeking, inappropriate child behaviors that do not cause any safety concerns (e.g., whining, playing rough with toys, temper tantrums; Herschell & McNeil, 2005). In the CDI phase, caregivers learn and utilize a specific set of skills (known as the “PRIDE” skills) to enhance the parent-child relationship. More specifically, the **PRIDE** skills teach caregivers how to reward children’s appropriate behaviors, and increase the frequency of those behaviors through: (**Praise**) recognizing and encouraging prosocial behaviors; (**Reflection**) utilizing active listening and reflection skills to increase verbal communication; (**Imitation**) modeling appropriate behaviors while enjoying time with children; (**Description**) conveying interest in positive behaviors; and (**Enjoyment**<sup>1</sup>) communicating enjoyment about interactions (Hembree-Kigin & McNeil, 1995).

The most basic rule for caregivers in the CDI phase is to follow the *child’s lead*.

As such, caregivers in the CDI phase also learn to avoid behaviors that take away (or

<sup>1</sup> Note. The “E” in the PRIDE skill acronym originally stood for “Enthusiasm.” In 2011, the “E” was changed to “Enjoyment” to better reflect the goals of the CDI phase.

attempt to take away) the lead from their child (i.e., questions, commands, and criticisms). Before progressing to the second phase of the PCIT intervention (i.e., the Parent-Directed phase), caregivers must demonstrate a specific number (or mastery criteria) of CDI skills within a five-minute period. More specifically, caregivers must exhibit at least 10 labeled praises, 10 behavioral descriptions, 10 reflective statements, and no more than a total of 3 questions, commands, or criticisms with an individual child during a five-minute observation period (Bell & Eyberg, 2002).

The essence of the second phase of PCIT, called the Parent-Directed Interaction (PDI) phase, is to teach caregivers to give effective commands and enhance behavior management skills. During the PDI phase, therapists assist caregivers with problematic situations by enhancing their abilities to set consistent and fair limits, follow through with commands in a predictable manner, and provide reasonable, age-appropriate consequences for misbehavior within the context of a positive parent-child relationship (Herschell & McNeil, 2005). During the PDI phase, caregivers learn how to utilize a specialized time-out procedure for noncompliance and severe misbehavior. Near the end of the PDI phase, increased emphasis is placed on the generalization of PCIT skills outside of the clinic environment (e.g., shopping mall, grocery store) to facilitate real-world mastery of PCIT techniques (Callahan et al., 2010).

Similar to the CDI phase, the PDI phase also requires specific behaviors to reach mastery criteria. For the PDI phase, caregivers must demonstrate the following behaviors during a five-minute observation period: (a) give at least 4 commands, 75% of which must be positive, direct commands; and (b) show at least 75% correct follow-through

after delivering effective commands (i.e., labeled praise for compliance, appropriate utilization of the time-out warning/procedures for noncompliance). Successful completion of the entire PCIT intervention requires that three criteria are met: (a) caregivers demonstrate mastery criteria of both CDI and PDI skills; (b) the child's behavior, as rated on the Eyberg Child Behavior Inventory (described below), is equal to or less than a raw score of 114; and (c) the caregivers express confidence in their abilities to appropriately manage their child's behaviors on their own (Callahan et al., 2010).

**Efficacy in clinical settings.** Previous PCIT research findings have demonstrated effectiveness in decreasing child disruptive behaviors (e.g., Eisenstadt, Eyberg, McNeil, Newcomb, & Funderburk, 1993; McNeil, Capage, Bahl, & Blanc, 1999), increasing child compliance with parental requests (e.g., Eyberg & Robinson, 1982), improving in the parent-child relationship (e.g., Eyberg, Boggs, & Algina, 1995), and reducing parental stress levels (e.g., Schuhmann, Foote, Eyberg, Boggs, & Algina, 1998). Further, child outcomes have been found to generalize from the controlled clinic setting to the home environment (e.g., Schuhmann et al., 1998), as well as from the home to school classrooms (McNeil, Eyberg, Eisenstadt, Newcomb, & Funderburk, 1991). In a recent review of 17 PCIT outcome studies (a total of 368 children who participated in PCIT), statistically significant improvements of child behavior problems were found across all studies (Gallagher, 2003). In fact, Gallagher (2003) reported clinical significance in 82% (14 of 17) of the studies – *clinical significance* was defined by changing behavior problems from clinically significant ranges (pre-treatment) to within normal ranges (post-treatment) on caregiver-report measures..

**Long-term maintenance of PCIT.** Follow-up studies, evaluating the maintenance of treatment gains of PCIT, have demonstrated long-lasting success. For example, treatment gains in the home setting have maintained one and two years post-treatment (Eyberg et al., 2001). Funderburk and colleagues (1998) found that PCIT gains in a clinic setting generalized to the classroom (without direct classroom intervention), and these improvements were maintained up to one year post-treatment, but to a lesser extent at the 18-month follow-up. Boggs and colleagues (2001) found that families who completed the PCIT intervention maintained their gains (in both child and family functioning) one to three years post-treatment. Lastly, Hood and Eyberg (2003) found that parent-child interactions continued to improve, and mothers' confidence in controlling their child's behavior was maintained, three to six years post-treatment.

**Efficacy of PCIT across populations.** PCIT has also been successfully adapted for services with a wide range of populations. Examples include children with developmental delays (Eyberg & Matarrazzo, 1980), separation anxiety disorder (Pincus, Choate, Eyberg, & Barlow, 2005), chronic illness (Bagner, Fernandez, & Eyberg, 2004), histories of physical abuse (Chaffin et al., 2004; Urquiza & McNeil, 1996), and histories of general maltreatment (Fricker-Elhai, Ruggiero, & Smith, 2005). Nontraditional caregivers have also experienced success with the PCIT program, including foster caregivers adoptive parents, and kinship caregivers (e.g., McNeil, Herschell, Gurwitch, & Clemens-Mowrer, 2005; Timmer, Urquiza, & Zebell, 2006). More recently, successful outcomes have been reported with a wide range of cultural diverse groups including Mexican American (McCabe, Yeh, Garland, Lau, & Chavez, 2005), Puerto Rican (Matos

et al., 2006), Chinese (Leung, Tsang, Heung, & Yiu, in press), Norwegian (Bjørseth & Wormdal, 2005), and Australian families (Nixon, Sweeney, Erickson, & Touyz, 2003; Phillips, Morgan, Cawthorne, & Barnett, 2008).

**Standard versus abbreviated treatment.** In a recent study, Nixon and colleagues (2003) compared: (a) standard PCIT, (b) an abbreviated version of PCIT where families viewed instructional videos in the home and participated in telephone consultations with the therapist, and (c) a waitlist control condition. At post-treatment, parents who received standard PCIT and those who received the abbreviated version showed significantly greater reductions in reported parenting stress and improvements in disciplinary practices when compared with the waitlist control group. Additionally, parents in both treatment groups reported significantly greater reductions in their children's externalizing behavior problems. In both the standard PCIT condition and the abbreviated condition, treatment gains were maintained at 6-month (Nixon et al., 2003), and one to two year follow-ups (Nixon, Sweeney, Erickson, & Touyz, 2004).

### **Teacher-Child Interaction Therapy (TCIT)**

In sum, research findings suggest that PCIT: (a) is a theoretically-based, efficacious treatment that is widely applicable and effective across diverse populations; (b) has treatment gains that are maintained over long periods of time in a variety of environments; and (c) has a protocol that has been successfully adapted to match client and/or population characteristics. Given the demonstrated success of PCIT in improving parenting practices and reducing problematic behaviors, Teacher-Child Interaction Training (TCIT), an adaptation of PCIT for use with teachers, has emerged. Since 2000,

several variants of TCIT have been created (further described below) and currently four research labs (i.e., University of Nebraska-Lincoln, DePaul University, West Virginia University, and the Child Mind Institute) have independently developed separate models of TCIT.

**Previous empirical research using TCIT.** McIntosh, Rizza, and Bliss (2000) used a single-subject case study to examine a modified version of PCIT in a preschool setting. The researchers named the adapted PCIT protocol Teacher-Child Interaction Therapy, and delivered services to a preschool teacher and a two-year-old child with disruptive and defiant behavior. The intervention was conducted over 12, twenty-minute coaching sessions, most of which (i.e., 10 out of 12 sessions) occurred in a small room outside the classroom context. In addition to the 12 sessions outside of the classroom environment, the teacher practiced TCIT skills with the child (five minutes each day) within the classroom. These one-on-one interactions took place while the child's classmates were involved in other activities (McIntosh et al., 2000). Overall, data collected within the TCIT sessions indicated that the teacher's use of positive interaction skills and child compliance increased, whereas the number of instructions given by the teacher and disruptive behaviors displayed by the child decreased. However, this study was limited as the behaviors of the teacher and child were only observed and recorded during the training room treatment sessions. Therefore, an evaluation of the generalization of treatment gains to the classroom was not possible.

Filcheck, McNeil, Greco, and Bernard (2004) examined the effectiveness of two interventions in reducing the amount of inappropriate behavior exhibited during a

structured classroom activity (i.e., circle time) in a preschool classroom with one teacher and 17 children. The study utilized “an ABACC’ treatment comparison design” (p. 351) to evaluate the efficacy of a Levels System (i.e., whole-class token economy) and both phases of TCIT (i.e., Child-Directed Interaction phase, Teacher-Directed Interaction phase). The baseline (eight observations) and withdrawal phases (six observations) were labeled Conditions A and represented the teacher’s typical classroom management strategies (e.g., time-out). Condition B was the Levels System intervention (28 observations). Lastly, conditions C and C’ represented the Child-Directed Interaction (seven observations) and Teacher-Directed Interaction (four observations) phases of TCIT, respectively (Filcheck et al., 2004). Results provided preliminary support for the use of both the Levels System and TCIT interventions to manage disruptive behavior in preschool classrooms. More specifically, the amount of inappropriate behavior exhibited in the classroom decreased with the implementation of the Level System and further decreased during the TCIT intervention. In addition, the teacher’s positive behaviors continued to increase over the course of TCIT (e.g., increased praise of children’s positive behaviors, decreased criticisms for negative behavior).

While findings from the Filcheck et al. (2004) study provide evidence for the effectiveness of TCIT, several methodological limitations should be considered when interpreting the results. For instance, the TCIT intervention was delivered after the Level System intervention and behaviors did not return to baseline levels prior to TCIT implementation. In fact, inappropriate child behaviors continued to decrease at a fairly consistent rate during the withdrawal period. An unstructured treatment protocol was

another limitation which resulted in inconsistent training times between the two interventions (i.e., 4 hours, 30 minutes of training time for the Levels System; 11 hours, 30 minutes of training time for the TCIT condition). Lastly, all of the classroom behaviors were recorded during a single, structured classroom activity (i.e., circle time). By limiting observations to a structured daily activity (versus observation of behaviors throughout the day), it is difficult to assess whether behavior changes were related to intervention techniques or social learning of group expectations over time. It is also important to note that the teacher in the study chose to continue to use the Level System, rather than TCIT skills, at the conclusion of the treatment intervention.

Tiano and McNeil (2006) expanded previous TCIT findings by utilizing a group design (i.e., four TCIT classrooms, three no-treatment comparison classrooms). Teachers in the TCIT condition received two group training workshops in CDI and PDI skills (each workshop lasted two hours), as well as in-classroom coaching. Overall, child behaviors improved throughout the study for both study conditions, and teachers in both conditions used fewer time-outs, criticized children less often, and rated their classroom as more manageable at the post-treatment assessment. However, expected outcomes (i.e., significant decreases in children's disruptive behavior, improved teacher ratings of classroom manageability) were not found between the two conditions. According to the authors, disruptive behaviors were already infrequent in the classrooms at baseline, and therefore "a floor effect occurred that made it difficult to detect any possible effects of treatment" (Tiano & McNeil, 2006, p. 228).



The study did find that teachers in the TCIT condition gave significantly more labeled praises at the post-treatment assessment than teachers in the no-treatment comparison group (Tiano & McNeil, 2006). However, several methodological limitations of the study should be addressed. For instance, while the researchers correctly hypothesized those teachers in the TCIT condition would use more labeled praise and less criticism (as compared to teachers in the control condition), the results are not surprising. The timing of the post-treatment assessment was data-driven (i.e., the length of the intervention was based on the time it took to demonstrate a mastery level of skills) and the post-treatment assessment occurred immediately after the skills used to reach that criterion were met for each teacher. In addition, data collection only occurred on the primary teacher in each classroom, the teachers were aware of the observers, and results were based on two observations (i.e., single pre-treatment and post-treatment observation).

More recently, Karen Budd and her students at DePaul University developed a TCIT program that serves as a Universal Prevention program. The DePaul Model of TCIT retains many of the core aspects of PCIT, but includes several adaptations, including: (a) a subset of established PCIT skills (e.g., teachers are taught to reduce but not eliminate commands and questions); (b) a group training format (i.e., three teachers and two or three trainers per group); (c) utilization of skills with multiple children at the same time (as opposed to teacher-child dyads); (d) a time-limited (versus data-driven) approach; and (e) in-classroom coaching (Gershenson, Lyon, & Budd, 2010; Lyon et al., 2009). In the first evaluation of the DePaul Model, a total of 12 teachers and 78 children

participated in the intervention. Teacher observations were conducted one to two times per week (across a four-month period) to evaluate TCIT skill utilization during a variety of activities (e.g., circle time, lessons, free play). Teacher behaviors were coded using an adapted version of the Dyadic Parent-Child Interaction Coding System (Eyberg, Nelson, Duke, & Boggs, 2009; described in more detail below). Individual teachers were observed between two to 10 minutes during each observation period and behaviors were coded as present or absent during 10-second intervals (rather than using a frequency count). The study used a nonconcurrent multiple baseline design to examine the effects of the TCIT intervention across the four participating classrooms.

Results from the DePaul study demonstrated improvements in teacher positive behavior changes between the baseline and CDI phase, but changes remained relatively unchanged during the TDI phase (and decreased during follow-up). More specifically, an overall mean change was found in positive behaviors (increase from 9% to 19%) between the baseline and CDI conditions. However, no changes in teacher positive behavior mean levels were found between the CDI and TDI phases (i.e., increased rate from 19% to 20%), and the majority of the classrooms demonstrated a deceleration of CDI skills during the TDI phase. Of the four teachers for whom follow-up data were collected, many of the positive behavioral changes had attenuated four months after the TCIT intervention, and a negative slope was found at follow-up across classrooms (Lyon et al., 2009).

Overall, the DePaul Universal Prevention Model continued to advance the implementation of TCIT in school settings and demonstrated positive changes from the

baseline condition. It is important to note that teachers were satisfied with the intervention, including the classroom coaching. However, the study had several limitations some of which were acknowledged by the authors (see Lyon et al., 2009). First, there was substantial variability in the training and coaching of teachers (e.g., not all teachers attended the group training in TDI, classroom coaching ranged from four to nine sessions across teachers). Second, in a related manner, fidelity data was not collected to monitor adherence to the TCIT protocol. Third, taking into account that behavior observations require considerable time and resources, it is difficult to assess whether a variable observational period (two to ten minutes based on the number of teachers that were present at the time) was able to accurately capture a representative sample of behaviors. Similarly, coding teacher verbalizations as either absent or present, rather than a frequency count, diminishes the ability to accurately assess each teacher's utilization and understanding of TCIT skills. Fourth, behavioral observations were conducted by graduate students involved in the research study as well as the principal investigator. The decision to use key personnel, who were intimately involved in the project (as opposed to uninformed undergraduate research assistants), could have several important implications (e.g., reactivity by the teacher, observer knowledge of treatment conditions). Lastly, the study did not observe (or collect information on) children's behaviors so it is impossible to know if changes in teacher behaviors were associated with improvements in the behaviors of preschool children.

More recently, Steven Kurtz, Melanie Fernandez, and their colleagues at the Child Mind Institute delivered TCIT to a day treatment program in New York City. Detailed

results of the project are currently under review for publication, but preliminary findings indicate that: (a) teachers were able to acquire TCIT skills in the training room; (b) teachers reported improved competence in managing challenging behaviors; and (c) several teachers expressed increased child compliance and increased child attention/focus in the classroom. However, research findings also demonstrated that: (a) teachers did not report significant changes on standardized measures of child behaviors; (b) many of the TCIT skills demonstrated in the training room did not generalize to the classroom environment; and (c) results varied across classrooms for on/off-task, appropriate/inappropriate, and disruptive behaviors (Kurtz et al., 2010).

**Teacher-Child Interaction Training – Preschool Program (TCIT-PRE).** The primary objective of this study was to evaluate the effectiveness of an empirically-based and short-term teacher intervention, the Teacher-Child Interaction Training Preschool Program (TCIT-PRE). The TCIT-PRE program was designed to promote social and behavioral competence for Head Start children and increase teacher-efficacy and satisfaction for Head Start teachers. The TCIT-PRE program was originally developed at the University of Nebraska-Lincoln (UNL), and the ongoing development of the TCIT-PRE program is currently a collaborative effort between UNL and the University of Oklahoma Health Sciences Center (OUHSC). Like PCIT, the TCIT-PRE program is a manualized treatment (Campbell et al., 2011) that is delivered in two phases which involve didactic, *teaching sessions* where the skills are introduced and role-played, as well as subsequent *coaching sessions* to facilitate the mastery of skills. In fact, the TCIT-PRE treatment manual was carefully created so that the program could meet the

specialized needs of the classroom environment, but still retain the core principles and goals of PCIT. Key distinctions between TCIT-PRE and PCIT include: (a) TCIT-PRE is a *classroom-wide intervention* and every child in the classroom participates (versus PCIT which is delivered in caregiver-child dyads); (b) the training and coaching of TCIT-PRE skills is conducted within the *natural, school environment* (as opposed to PCIT which is typically delivered in a clinic); (c) the TCIT-PRE program is designed to observe the progression skills in *multiple contexts* including the classroom environment (PCIT services rarely include home observations); and (d) TCIT-PRE services are delivered *twice per week* (rather than once per week).

The TCIT-PRE program places enormous value on early childhood educators and teacher-child relationships. This is based on a growing body of empirical evidence which suggests that the quality of the teacher-child relationship makes important contributions to early school adjustment, particularly in the social and behavioral domains (e.g., Birch & Ladd, 1996; Howes, 2000; Pianta & Stuhlman, 2004). In fact, research suggests that children who experience more secure or close teacher-child relationships exhibit fewer behavioral problems, are more prosocial towards peers, report more enjoyment in school, and perform better academically than children who experience more conflicted teacher-child relationships (e.g., Birch & Ladd, 1997; Hamre & Pianta, 2001). Additionally, there is substantial evidence that well-trained and supportive teachers, who utilize high levels of praise and proactive teaching and behavior management strategies, can play an extremely important role in fostering the development of social skills while preventing the development of conduct problems in young children (Webster-Stratton et al., 2008).

In fact, recent findings indicate that having at least one high-quality, supportive teacher-child relationship resulted in significant improvements in overall adjustment for high-risk youth, and served as one of the most important protective factors of later school success (Baker, 2006). Thus, positive interactions with teachers may mitigate a trajectory that could lead to short- and long-term school adjustment problems, and teacher training/support may maximize preschoolers' readiness for success (Palermo, Hanish, Martin, Fabes, & Reiser, 2007).

**Pilot investigation of TCIT-PRE.** During the summer of 2008, the primary investigator collaborated with faculty and graduate colleagues at the University of Nebraska-Lincoln (UNL) to deliver a pilot investigation of TCIT-PRE to Head Start teachers (and Head Start management) at a local child development center. This pilot research was conducted as part of an ongoing collaborative partnership between a local Head Start Center, a community action agency, and researchers at UNL. The purpose of the pilot project was to address the current gaps in both the TCIT and teacher training literature by: (a) evaluating the efficacy of TCIT-PRE using a structured treatment manual; (b) evaluating TCIT-PRE with a limited resource sample of preschool children with a wide range of social and behavioral problems; and (c) utilizing a multi-method, multi-symptom, and multi-informant assessment approach to evaluate teacher and child behaviors throughout treatment. In order to accomplish this task, members of the Child Maltreatment Lab at the UNL developed a TCIT-PRE treatment manual, and this newly developed protocol was utilized to conduct the TCIT-PRE pilot project with three Head Start preschool teachers. Preliminary results from the pilot project were promising as

Head Start teachers demonstrated mastery criteria of TCIT-PRE skills in the training room and increased their use of TCIT-PRE skills in the classroom (Campbell et al., 2008). In addition, Head Start children exhibited decreased aggression and increased participation in classroom activities (Klinkebiel et al., 2008). However, the generalization and maintenance of TCIT-PRE skills from the training room to the classroom was inconsistent across teachers.

Although findings from the pilot project provided initial contributions to the examination of the effectiveness of TCIT-PRE in Head Start settings, additional efforts were needed to improve upon preliminary results, such as: (a) live classroom coaching for Head Start teachers to improve the generalization of TCIT-PRE skills (coaching in the pilot project was only conducted in the training room); (b) coaching sessions with individual and small groups of children (in the pilot project, coaching of TCIT-PRE skills occurred primarily with individual children which is not reflective of the classroom environment); (c) multiple TCIT-PRE coaches and random assignment of teachers (TCIT-PRE was only delivered by the primary investigator in the pilot project); (d) systematic assessment of treatment integrity; and (e) a multi-site evaluation with multiple teachers (the pilot study was conducted with three teachers at a single site).

### **Purpose of the Present Study**

The purpose of the present study was to build on existing efforts in evaluating TCIT-PRE, a teacher-focused, preschool intervention developed to: (a) strengthen positive teacher-child relationships; (b) enhance behavior management skills; (c) promote the social and behavioral development of preschool children; and (d) improve teacher-

efficacy and job satisfaction for preschool teachers. Understanding the impact of the TCIT-PRE intervention on preschool children's social and behavioral competence can provide valuable information to early childhood programs seeking to improve school readiness and functioning across interconnected social, behavioral, and academic domains. The specific aims and corresponding hypotheses for this study were:

**Primary Aim #1: Examine if Head Start teachers participating in the TCIT-PRE program demonstrate changes in both teacher-child relationship enhancement and behavior management skills within the training room.**

Hypothesis. Head Start teachers will demonstrate mastery criteria of both teacher-child relationship enhancement and behavior management skills with individual and small groups of children within the training room.

The first primary research aim of this study was to examine Head Start teachers' ability to acquire and master Child-Directed Interaction (CDI) skills designed to enhance teacher-child relationships and reduce disruptive or challenging behaviors. In the TCIT-PRE pilot study, every teacher demonstrated mastery criteria of CDI (or PRIDE) skills with an individual child (Campbell et al., 2008). In the present study, it was hypothesized that Head Start teachers would demonstrate mastery criteria of CDI skills with both individual and small groups of children within the training room. Similar to PCIT, CDI mastery criteria in the TCIT-PRE program required teachers to exhibit at least 10 labeled praises, 10 behavioral descriptions, 10 reflective statements (and no more than a total of 3 questions, commands, or criticisms) with an individual or small group of children during a five-minute observation period.



Further, it was hypothesized that Head Start teachers would demonstrate mastery criteria of behavior management skills (i.e., Teacher-Directed Interaction skills) with both individual and small groups of children within the training room. Mastery criteria of Teacher-Directed Interaction (TDI) skills required teacher to demonstrate the following behaviors during a five-minute observation period: (a) give at least 4 commands, 75% of which must be positive, direct commands; and (b) show at least 75% correct follow-through after delivering effective commands (i.e., labeled praise for compliance, appropriate utilization of the Pause and Replay warning/procedures for noncompliance). Overall, the first primary hypothesis was consistent with the PCIT intervention in that it required the demonstration of mastery criteria of both teacher-child relationship enhancement skills and behavior management skills in order to successfully complete the entire program.

**Primary Aim #2: Determine whether the teacher-child relationship enhancement and behavior management skills acquired by Head Start teachers within the training room would generalize to the classroom environment.**

Hypothesis. Head Start teachers will demonstrate increased use of both relationship enhancement and behavior management skills within the classroom.

The second primary research aim of this study was to determine if Head Start teachers would utilize TCIT-PRE skills, acquired within the training room, in their natural classroom environment. Research findings related to this aim may be of scientific importance because it addressed a significant gap in the current empirical literature.

Renowned Parent-Child Interaction Therapy researchers, most notably Sheila Eyberg and Cheryl McNeil, have demonstrated the success of PCIT in parent-child dyads in numerous research studies. However, to date, no known studies *regularly observed* the caregivers utilization of PCIT skills (acquired in the clinic setting) in their natural home environment. The present study not only recorded teachers' utilization of TCIT-PRE skills within the training room, but also regularly observed teachers within their classroom. This aim was designed to provide an increased understanding of the TCIT-PRE program and each teacher's ability to generalize newly acquired skills across contexts.

**Primary Aim #3: Evaluate if Head Start children demonstrate observable changes in social and behavioral competencies during the TCIT-PRE intervention.**

Hypothesis. Head Start teachers' utilization of TCIT skills will lead to observable improvements in the social and behavioral functioning of Head Start children.

The purpose of the third aim of the present study was to utilize independent behavior observations to corroborate teacher (and parental reports) of behavioral changes. Although live observations are considered the gold standard for objectivity in behavioral research, particularly as measures of treatment effects (Pelham, Fabiano, & Massetti, 2005), most studies rely on caregiver (or teacher) report assessments to measure changes in children's behavior (Domitrovich et al., 2007). In the PCIT literature, numerous caregiver-report studies have demonstrated the effectiveness of the intervention across a broad range of child-related outcomes, including: increased compliance with adult

requests, decreased disruptive behaviors, and improved parent-child relationships (e.g., Eisenstadt et al., 1993; Eyberg et al., 1995; Eyberg & Robinson, 1982; McNeil, Capage, Bahl, & Blanc, 1999). Because the TCIT-PRE program was adapted from the empirically-supported PCIT intervention, it was hypothesized that changes in child classroom behaviors would be observed (as well as reported).

**Secondary Aim #1: Examine if Head Start children participating in the TCIT-PRE program demonstrate changes in social and behavioral competence as reported by Head Start teachers and parents.**

Hypothesis. Both Head Start teachers and Head Start parents will report improvements in the social and behavioral competence of participating Head Start children following the TCIT-PRE program, with teachers reporting more improvement than parents.

The utilization of multiple informants (e.g., children, caregivers, teachers) is a crucial element in all behavioral assessments of children, especially in relation to externalizing problems (Martin, Campbell, & Hansen, 2010). Secondary Aim #1 was created to provide converging evidence for the TCIT-PRE intervention, and investigate whether changes reported on teacher- and parent-report assessments matched the behavioral changes observed in the classroom. The hypothesis that teachers would report improvements in social and behavioral competence following the TCIT-PRE program was based on a recent review of 17 PCIT outcome studies that found statistically significant improvements of child behavior problems across all studies (via caregiver-report measures; Gallagher, 2003).

The hypothesis that changes in social and behavioral competence within the classroom would generalize to the home (without direct intervention) was based on previous PCIT research. For instance, Schuhmann and colleagues (1998) demonstrated the generalization of positive child outcomes from a controlled clinic setting to the home environment, whereas McNeil and colleagues (1991) demonstrated improvements from the home to school classrooms without direct intervention in those settings.

**Secondary Aim #2: Determine whether Head Start teachers participating in the TCIT-PRE program demonstrate changes in perceptions of teaching efficacy and overall job satisfaction.**

Hypothesis. Head Start teachers participating in the TCIT-PRE program will report increased teacher-efficacy and job satisfaction following the TCIT intervention.

The final aim explored the relationship between the TCIT-PRE program and teachers' perceptions of efficacy (i.e., teachers' belief that they have the knowledge, skills, and confidence needed to accomplish tasks) and job satisfaction (i.e., increased pleasure resulting from the appraisal of their job as achieving personal values). According to Bandura (1977), *self-efficacy* refers to a belief that we have the knowledge, skills, and confidence needed to accomplish tasks. During the past three decades, research has repeatedly demonstrated that teacher efficacy impacts child outcomes in K-12 classrooms (Quesenberry, 2007). For example, studies with school-age teachers have linked teacher efficacy with stronger job commitment (Coladarci, 1992), higher student achievement (e.g., Ross, Cousins, & Gadella, 1996), and tendencies to report challenging

behaviors as less severe (Woolfolk & Hoy, 1990). Quesenberry (2007) indicated that teachers feel more efficacious when working in training programs that include: (a) ongoing professional development opportunities; (b) strategies to prevent challenging behaviors; and (c) a system to track the ongoing progress of each child.

Ho and Au (2006) define *teaching satisfaction* as “the pleasurable emotional state resulting from the appraisal of one’s job as achieving or facilitating one’s job values” (p. 172). However, to date, studies examining the relationship of early childhood teachers’ job satisfaction with child outcomes are rare. One exception, Quesenberry (2007) studied 43 teachers in six Head Start programs and findings indicated that higher job satisfaction was associated with higher social skills and lower challenging behavior ratings of children. Since TCIT-PRE is a teacher training program which offers: (a) individualized training and coaching; (b) relationship enhancement and behavioral management strategies; (c) ongoing data collection to tracking; and (d) was designed to improve social competence and reduce behavioral challenges, it was hypothesized that Head Start teachers would report increased efficacy and job satisfaction at the completion of the program.

## Chapter 2: Research Design and Methods

### Participants

The TCIT-PRE program was delivered to a total of six teachers and 101 children that were enrolled in six different Head Start classrooms. The six participating Head Start classrooms were located in three Head Start Centers that were equally divided between two Midwestern counties (County A and County B). The three participating preschool classrooms in County A were *part-day, part-year* programs located in two Head Start Centers that are 27 miles apart (i.e., two classrooms in one Head Start Center, one classroom in a different Head Start Center). The remaining three classrooms were located at a single site in County B at a *full-day, full-year* Head Start program.

The six participating teachers (five female, one male) were the lead instructors in each of the six classrooms, and the teachers ranged in age from 25 to 54 years ( $M = 34.00$ ;  $SD = 11.26$ ). All teachers identified as European American and five out of six teachers had a bachelor's degree (one teacher had a master's degree). Total time as an educator ranged from six months to 18.6 years ( $M = 8.85$  years;  $SD = 5.83$ ), and total time as an educator in Head Start settings ranged from six months to 10 years ( $M = 3.31$  years;  $SD = 3.74$ ). More detailed information for teachers in each county is provided in Table 1.

The 101 participating children (50 female, 51 male) ranged in age from 2.75 to 6.17 years ( $M = 4.45$ ;  $SD = 0.72$ ). The majority of the children (63.4%) were European American, 14.9% were African American, 13.9% were Hispanic/Latino, 1.0% were Asian/Pacific Islander, and the remaining 6.8% identified as Biracial/Multiracial. The

Table 1  
*Demographic Information for Head Start Teachers*

	County A ( <i>n</i> = 3)	County B ( <i>n</i> = 3)
<b>Gender</b>		
Male	33.3%	---
Female	66.7%	100%
<b>Age</b>		
Average Age	40.3 Years	27.7 Years
Range	27 – 54 Years	25 – 32 Years
<b>Race/Ethnicity</b>		
European American	100%	100%
<b>Highest Level of Education</b>		
High school diploma / GED	---	---
4-Year college degree	66.7%	100%
Master's degree	33.3%	---
<b>Total Years of Teaching Experience (average)</b>	12.2 Years	5.5 Years
<b>Total Years of Teaching in a Head Start Setting (average)</b>	6.0 Years	7 Months
<b>Range of Years Teaching in Head Start Setting</b>	3 – 10 years	6 – 8 Months

number of children in each of the six participating classrooms ranged from 15 to 18 students ( $M = 16.83$ ;  $SD = 1.17$ ), and demographic information for each county is described below (Table 2). Eligible children for the study were between three to five years of age, and enrolled in their classroom for at least two months prior to the onset of the study. No other exclusionary criteria were utilized.

In addition to collecting information about Head Start teachers and children, demographic information was collected for the 100 caregivers of the participating Head Start children (one caregiver had two children enrolled in the study). The caregivers (97 females, three males) ranged in age from 20 to 63 years ( $M = 31.83$ ;  $SD = 9.31$ ). The

majority of caregivers (74.3%) identified as European American, 11.9% were African American, 7.9% were Hispanic/Latino, 1% were Asian/Pacific Islander, and 2.0% identified as Biracial/Multiracial (2.9% did not report their ethnicity). Seventeen (16.9%) of the caregivers did complete their high school education, 38 (37.6%) of the caregivers had a high school diploma or GED, 38 (37.6%) had completed some college, and five caregivers (4.9%) had earned their Bachelor's Degree (three caregivers did not report their highest education level). Caregiver demographic information, separated by county, is summarized above (Table 3).

Table 2  
*Demographic Information for Head Start Children*

	County A (n = 52)	County B (n = 49)
<b>Gender</b>		
Male	53.1%	48.1%
Female	46.9%	51.9%
<b>Age</b>		
Average Age	4.55 Years	4.35 Years
Range	3.4 – 6.2 Years	2.8 – 6.1 Years
<b>Race/Ethnicity</b>		
European American	83.7%	44.2%
Hispanic/Latino	14.3%	15.4%
African American	2.0%	25.0%
Asian/Pacific Islander	---	1.9%
Native American	---	---
Biracial/Multiracial	---	13.5%



Table 3  
*Demographic Information for Head Start Caregivers*

	County A ( <i>n</i> = 48)	County B ( <i>n</i> = 52)
<b>Primary Caregiver's Gender</b>		
Male	4.1%	1.9%
Female	93.9%	98.1%
<b>Age</b>		
Average Age	31.5 Years	32.1 Years
Range	20 – 63 Years	21 – 62 Years
<b>Race/Ethnicity</b>		
European American	91.8%	57.7%
Hispanic/Latino	2.0%	11.5%
African American	---	23.1%
Asian/Pacific Islander	---	1.9%
Other	6.1%	5.8%
<b>Parental education</b>		
Some high school	12.2%	21.1%
High school diploma/GED	40.8%	34.6%
Some training beyond high school	38.8%	29.0%
2-Year college degree	4.1%	3.8%
4-Year college degree	---	5.8%
Master's degree	---	3.8%
Other	4.1%	1.9%

## Measures

**Behavioral observations of Head Start teachers.** As previously mentioned, independent behavior observations of teachers were used to evaluate behavioral changes. These structured assessments were conducted by a team of trained undergraduate research assistants who used a specific observation system (i.e., the Dyadic Parent-Child Interaction Coding System – Third Edition; Eyberg et al., 2009; described below) to evaluate teacher verbalizations that occurred within the classroom. Behavioral assessments occurred twice per week (unless a teacher was absent) and each teacher was observed over a 10-minute interval during each assessment period.

In the present study, behavior observations of Head Start teachers occurred during regular classroom hours across a wide variety of environments and contexts. Teachers were observed during instructional periods (e.g., circle time, daily lessons), free time (e.g., activity stations), and meals (e.g., breakfast and lunch). Teachers were also observed inside their classroom environment, guiding children to different locations (e.g., walking down the hallway), as well as outside. By observing teachers across contexts (rather than limiting observations to a specific time each day), a more complete picture of TCIT-PRE skill utilization was obtained. A broad spectrum of observations also decreases the likelihood of reactivity to the observations and reduces concerns that behavioral changes were limited to a certain activity (e.g., circle time).

***Dyadic Parent-Child Interaction Coding System – Third Edition (DPICS-III; Eyberg et al., 2009).*** The DPICS-III is an observation system used to assess the quality of the parent-child social interactions. More specifically, the DPICS-III assesses the frequency of parental use of child-directed and parent-directed interaction skills over a five-minute period. For the purposes of the present study, a fairly strict adaptation of the DPICS-III coding system (e.g., the word “teacher” is substituted for “parent”) was utilized to reflect teacher versus parental behaviors. In the current study, the adapted version of the DPICS-III was used as a live behavioral observation assessment of teacher verbalizations within training sessions and the broader classroom environment. Within the training room, teacher verbalizations were recorded using the standard five-minute interval. In the broader classroom environment, teacher verbalizations were recorded over a 10-minute interval during each assessment.

The DPICS-III is an updated version of the original DPICS for which numerous studies have established reliability and validity (e.g., Eyberg & Robinson, 1982). The mean inter-rater reliability for parental behavior for the original DPICS was .91. Several studies have also found the DPICS to be sensitive to treatment effects (e.g., Eyberg & Matarazzo, 1980; Webster-Stratton, Hollinsworth, & Kolpacoff, 1989). In the present study, a total of 50 live inter-observer observations were conducted over the course of the study. Overall, 11 out of 14 codes had intraclass correlations 0.75 or higher, with nine codes having intraclass correlations above 0.90 (Table A-1 in Appendix A).

**Teacher-report of child functioning.** Participating teachers were asked to complete teacher-report measures on student's social and behavioral functioning at two assessment periods (i.e., pre-treatment, post-treatment). At the pre-treatment, or *baseline* assessment, teachers completed three teacher-report measures on students' functioning (which are further described below). Teachers repeated these assessments during the post-treatment assessment. Teachers received a \$100 stipend at the completion of each assessment period.

***The Child Behavior Checklist – Teacher Rating Form (CBCL-TRF; Achenbach & Rescorla, 2000).*** The CBCL-TRF is a 99-item teacher-report assessment of behavioral problems for children between 1 ½ to 5 years of age. On the CBCL-TRF, respondent answer each of the 99 items using a 3-point scale: 0 (*not true*), 1 (*somewhat or sometimes true*), or 2 (*very true or often true*). The CBCL-TRF takes approximately 15 minutes to complete and overall results are reported across three domains (i.e., Externalizing, Internalizing, and Total Behavior). The three domains are comprised of six syndrome

scales (Emotionally Reactive, Anxious/Depressed, Withdrawn, Somatic Complaints, Attention, and Aggression). Reported Cronbach's alphas for the CBCL-TRF syndromes ranged from .52 to .96, with alphas of .89, .96, and .97 for Internalizing, Externalizing, and Total Scales respectively. Test-retest reliability correlations for the Internalizing, Externalizing, and Total Problems (with an eight-day interval between tests) have been reported as .77, .89, and .88 respectively. Strong validity evidence for the CBCL-TRF scores has been established through multiple studies conducted over the last 20 years (Achenbach & Rescorla, 2000).

***The Sutter-Eyberg Student Behavior Inventory - Revised (SESBI-R; Eyberg & Pincus, 1999).*** The SESBI-R is a 38-item teacher rating scale of disruptive behavior at school for children (ages 2 to 16 years of age) that was designed to identify children who are in need of treatment for behavioral problems. The SESBI-R requires at least a 6<sup>th</sup> grade reading level and takes approximately 10 minutes to complete. The SESBI-R contains two scales: (1) an Intensity Scale which measures the frequency of behavioral problems using a 7-point Likert-type scale ranging from 1 (*Never*) to 7 (*Always*); and (2) a Problem Scale which uses a *yes/no* format to assess the degree to which a child's behavior is problematic for the teacher.

The SESBI-R scores are continuous such that higher scores on a scale indicate a greater level of conduct-disordered behavior and greater impact on the teacher. Reported Cronbach's alphas for the SESBI-R are .98 for the Intensity Scale and .96 for the Problems Scale (Eyberg & Pincus, 1999). Test-retest reliability correlations were .87 for Intensity Scale and .93 for the Problem Scale (Eyberg & Pincus, 1999). Inter-rater

reliability for the SESBI-R ranged from .85-.86 for the Intensity Scale and from .84 to .87 for the Problems Scale (Eyberg & Pincus, 1999). Studies have supported the utility of the SESBI to assess treatment outcomes (e.g., Schuhmann et al., 1998).

***Social Competence and Behavior Evaluation, Preschool Edition (SCBE; LaFreniere & Dumas, 1995).*** The SCBE is an 80-item teacher-report that is used to assess social competence, affective expression, and adjustment in children 30 months to 76 months of age. This instrument takes approximately 15 minutes to complete and uses a Likert-type 6-point scale ranging from 1 (*behavior never occurs*) to 6 (*behavior always occurs*). The scale is composed of eight basic scales and four summary scales that capture a broad array of behaviors commonly seen in a preschool setting. Three basic scales (Aggressive-Calm, Egotistical-Prosocial, Isolated-Integrated) describe social interactions with peers, three basic scales (Angry-Tolerant, Anxious-Secure, Depressive-Joyful) represent overall adjustment, and the final two scales (Dependent-Autonomous, Oppositional-Cooperational) represent interactions with adults.

The four summary scales are: (1) Social Competence, which summarizes all eight positive characteristics (Calm, Prosocial, Integrated, Tolerant, Secure, Joyful, Autonomous, Cooperational); (2) Internalizing Problems (Depressive, Anxious, Isolated, Dependent); (3) Externalizing Problems (Angry, Aggressive, Egotistical, Oppositional); and (4) the General Adaptation scale which summarizes all 80 items. Scores on the scales are *T*-scores and, different from most clinical assessment instruments, higher numbers represent more *positive* ratings. Reported Cronbach's alphas range from .79 to .91, and test-retest reliability correlations ranged from .74 to .87 (LaFreniere & Dumas, 1995).

**Teacher demographics, efficacy, job satisfaction, and program evaluation.** In addition to teacher-report measures on child functioning, participating teachers were also asked to complete measures about their own perceptions of efficacy and satisfaction (described below). Measures of efficacy and satisfaction were completed at both assessment periods (i.e., pre-treatment, post-treatment). Teachers also completed a basic demographic form at the pre-treatment assessment, and a TCIT-PRE evaluation form at post-treatment.

***Demographic Form.*** Participating teachers The form took approximately five minutes to complete and items assessed the teachers' age, race/ethnicity, education level, total years of teaching experience, and total years of teaching in Head Start settings.

***Teacher Efficacy Scale.*** In the present study, a 20-item efficacy assessment was adapted from the Teacher Efficacy Scale (TES; Gibson & Dembo, 1984). The TES is a 30-item assessment measure of a teacher's perceived level of efficacy that takes approximately five minutes to complete. Unfortunately, many of the items on the original TES instrument were dated and did not reflect the current Head Start environment. Thus, an adaptation was created to capture a teacher's sense of teaching efficacy (i.e., belief that one's ability to promote student learning and bring about change in a student is limited by factors outside the teacher's control). Items on the TES were summed to create a Total Score and Cronbach's alpha for the present study was low (0.39).

***Teaching Satisfaction Scale.*** Due to limited number of empirically-supported assessments of teacher satisfaction, a 30-item satisfaction scale was created for the current study. This instrument took approximately five minutes to complete and used a

Likert-type 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) to assess a broad range of employment satisfaction. Items on the TSS were summed to create a Total Score and Cronbach's alpha for the present study was 0.96.

***TCIT-PRE Program Evaluation Form.*** At the completion of the study, each teacher also completed a 37-item evaluation of the TCIT-PRE program. The measure took approximately 15 minutes to complete and used a Likert-type 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). This teacher-report measure assessed: (a) the format of the program (e.g., frequency of sessions, length of sessions, content); (b) TCIT-PRE coaches (e.g., knowledge, preparation, ability to answer questions, coach, and problem-solve); (c) TCIT-PRE homework (e.g., usefulness, homework tasks); (d) live coaching (e.g., usefulness, feasibility); and (e) overall experience (e.g., usefulness of skills, contribution to professional growth). The evaluation form was administered at a scheduled post-treatment appointment by a graduate student who did not directly participate in the program.

#### **Behavioral observations of Head Start children.**

As previously mentioned, independent behavior observations of children were used to corroborate teacher (and parental reports) of behavioral changes. These structured assessments were conducted by a team of trained undergraduate research assistants who used a specific observation system (i.e., the Behavioral Observation of Preschoolers System; Campbell et al., 2011; described below) to evaluate classroom behaviors. Behavioral assessments occurred twice per week (unless a child was absent) and each child was observed over a 15-minute interval during each assessment period.

Much like the teachers, participating Head Start children were also regularly observed during classroom hours across a wide variety of environments and contexts. That is, children were observed during instructional periods (e.g., circle time, daily lessons), free time (e.g., activity stations), and meals (e.g., breakfast and lunch). Children were also observed inside their classroom environment, during transitions (e.g., walking down the hallway), and playing outside. By observing children across contexts (rather than limiting observations to a specific time each day), a more complete picture of everyday behaviors was obtained. A broad spectrum of observations also decreases the likelihood of reactivity to the observations and reduces concerns that behavioral changes were limited to a certain activity (e.g., circle time).

*The Behavioral Observation of Preschoolers System (BOPS; Campbell et al., 2011).* The BOPS (formerly the CAMBOPS-35) is a 35-item live behavioral observation coding system originally created to evaluate the effectiveness of behavior management consultation services delivered to Head Start programs. The coding system consists of a 15-minute observation period separated into 30-second intervals (25-second observation interval and a five-second recording interval). The coding system captures 35 prosocial and disruptive behaviors grouped into 5 categories (i.e., Cooperation with Adults, Peer Interactions, Independent and Self-Regulating Behaviors, Challenging Behaviors, and Atypical Behaviors).

In the TCIT-PRE pilot study, inter-observer reliability estimates for the original CAMBOPS-35 ranged from .41 to 1.00. However, of the 23 codes observed during inter-observer evaluations, 18 codes had interrater correlation coefficients of .75 or higher and



12 codes had correlation coefficients of .90 or above (Campbell et al., 2008). In the present study, a total of 67 live inter-observer observations were conducted and 30 out of 35 codes were observed during these evaluations. Of the 30 codes observed, 25 codes had intraclass correlations of .70 or higher, with 16 codes having coefficients of .85 or higher. Five behavioral codes, which are rare but important to capture (e.g., sexual behaviors, eating non-nutritive substances), were not observed during inter-observer evaluations (Table A-2 in Appendix A).

**Caregiver-report of child functioning.** Participating caregivers were asked to complete caregiver-report measures on their child's social and behavioral functioning at home during two assessment periods (i.e., pre-treatment, post-treatment). Assessments were either completed at participating Head Start Centers or taken home and later returned. At the pre-treatment assessment, parents completed three measures: a demographic form and two assessments on their child's functioning (which are further described below). The completion of all three assessments took approximately 30 minutes. At the post-treatment assessment, caregivers completed the same two assessments on their child's functioning. Families received a \$20 stipend at the end of each assessment period.

***Demographic Form.*** During the pre-treatment assessment period, caregivers of participating children completed a basic demographic form. The form took approximately five minutes to complete and items assessed the caregiver's relationship to the child, race/ethnicity, and parental education level.

*Child Behavior Checklist /1 ½ - 5 (CBCL; Achenbach & Rescorla, 2000).* The CBCL is a 99-item caregiver-report assessment of behavioral problems for children between 1 ½ to 5 years of age. The CBCL for toddlers and preschoolers was originally developed for children 2-3 years of age (Achenbach, 1992). However it was recently revised and re-standardized for use with children 18 months to 5 years of age (Achenbach & Rescorla, 2000). The CBCL requires at least a 5<sup>th</sup> grade reading level and takes approximately 10-15 minutes to complete. Respondents on the CBCL (parents or caregivers) are asked to rate the degree to which they believe each item is true about their child's behavior over the past 2 months on a scale from 0 (*not true*) to 2 (*very true or often true*). The CBCL consists of two broadband scales, Internalizing Problems and Externalizing Disorders. The Internalizing Problems scale consists of four syndrome subscales (Emotionally Reactive, Anxious/Depressed, Somatic Complaints, and Withdrawn), and the Externalizing Disorders scale consists of two syndrome subscales (Attention Problems and Aggressive Behavior).

Standardized *T*-scores are used to estimate a child's levels of difficulty relative to the population. Reported Cronbach's alphas for the CBCL range from .66 to .92 for the syndrome scales, and were reported as .89 for the Internalizing Scale and .92 for the Externalizing Scale (Achenbach & Rescorla, 2000). Test-retest reliability for the CBCL (with an eight-day interval between tests) was .85 (Achenbach & Rescorla, 2000). Overall, strong validity evidence for the CBCL scales has been established through multiple studies conducted over the last 20 years (Achenbach & Rescorla, 2000).

*The Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999).* The ECBI is a 36-item caregiver-report assessment of behaviors associated with the primary childhood disruptive behavior disorders (e.g., Oppositional Defiant Disorder, Attention-Deficit/Hyperactivity Disorder). The ECBI was designed for children 2-16 years of age, requires at least a 6<sup>th</sup> grade reading level, and takes approximately 10 minutes to complete. The ECBI yields two scales: (1) an overall Intensity Scale which reflects the frequency of difficult behaviors using a 7-point Likert-type scale ranging from 1 (*Never*) to 7 (*Always*), and (2) an overall Problem Scale that uses a *yes/no* force-choice question format to indicate the number of child behaviors the caregiver views as problematic.

The ECBI scores are continuous such that higher scores on a scale indicate a greater level of conduct-disordered behavior and greater impact on the caregiver. Reported Cronbach's alphas for the ECBI are .95 for the Intensity Scale and .93 for the Problems Scale (Eyberg & Pincus, 1999). Test-retest reliability for the ECBI ranges from .75 to .86 for the Intensity Scale and .75 to .88 for the Problem Scale (Eyberg & Pincus, 1999). Inter-rater reliability for the ECBI was reported as .86 for the Intensity Scale and .79 for the Problems Scale (Eyberg & Pincus, 1999). Both the Intensity and Problem Scales have demonstrated consistency across age and socioeconomic levels (Colvin, Eyberg, & Adams, 1999), and an ability to detect changes in treatment outcome studies (e.g., Eisenstadt et al., 1993).

### **Research Design**

The present study utilized a concurrent multiple-baseline across subjects research design (Kazdin, 2003) to evaluate the acquisition, generalization, and maintenance of

TCIT-PRE skills by Head Start teachers, and changes in Head Start children's social and behavioral competence. More specifically, the study conducted *two* concurrent multiple-baseline designs (i.e., occurring at the same time), with one multiple-baseline for the three classrooms in County A, and a separate multiple-baseline for the three classrooms in County B. The six Head Start classrooms were split into separate multiple baseline designs due to key differences between the services available/offered within the two counties, including: (a) County A is a part-day, part-year program and County B is a full-day, full-year program; (b) County A programs are located within an elementary school setting and classroom schedules are structured similar to K-5 classrooms, while County B programs are in a stand-alone facility with less structured classroom scheduling; (c) County A programs, because they are located within an elementary school, receive additional support and features that are not available to County B's stand-alone site (e.g., speech services, increased variety of classes such as music and reading); and (d) because the Head Start programs in County A are located within an elementary school, they must hire certified teachers whereas County B programs do not have a teacher certification requirement. In sum, keeping classes with similar program characteristics and services together within each multiple-baseline design reduced several methodological confounds.

According to Kazdin (2003), multiple-baseline designs demonstrate the effect of an intervention by illustrating that behavior changes accompany the introduction of the intervention at different points in time. That is, behaviors are initially measured over time to provide baseline data, or pre-treatment conditions, against which changes in experimental conditions can be evaluated (Barlow, Nock, & Hersen, 2009). By

staggering the introduction of the intervention across participants within a multiple-baseline design, the baseline phase for participants for which the intervention is delayed can be compared not only to the intervention phase of the same participant, but also the intervention phase of other participants already receiving the intervention at the same point in time. This added ability to make comparisons across participants in different phases at a single point in time helps to rule out potential threats to internal validity such as history effects, which without a multiple-baseline design would be difficult to rule out (Barlow et al., 2009).

To further describe the design, the three participating preschool classrooms in County A and County B are labeled Classrooms 1, 2, and 3, and the study design could be conceptualized as an A-B-C-A design. In *Condition A* of the concurrent multiple-baseline design, *baseline* observational data were collected in all classrooms (i.e., Classrooms 1, 2, and 3 in both County A and County B) for at least five weeks, twice per week, prior to the TCIT-PRE intervention.

Next, the TCIT-PRE intervention was introduced in a systematic and scheduled manner. In the present study, the first phase of the TCIT-PRE program (the Child-Directed Interaction phase, further described below) was introduced in Classroom 1 (simultaneously in both County A and County B) and the start of the intervention served as experimental *Condition B*. During this first week of the TCIT-PRE intervention for Classroom 1, Classrooms 2 and 3 (in both County A and County B) did not receive the TCIT intervention, thereby remaining in *Condition A* (or baseline). One week later, Classroom 2 in both County A and County B started the intervention (*Condition B*),

while Classroom 3 in each county remained in *Condition A*. The following week (two weeks after Classroom 1 began the intervention), Classroom 3 in both County A and County B started the intervention (*Condition B*). The second phase of the TCIT-PRE program (the Teacher-Directed Interaction phase, further described below) represented *Condition C* and was introduced in the same step-wise fashion (i.e., staggered one week apart for Classrooms 1, 2, and 3). In the same manner, the TCIT-PRE intervention ended in the same step-wise manner (*Condition A*), with Classroom 3 in both counties ending the intervention two weeks after Classroom 1, and one week after Classroom 2.

As stated above, introducing the TCIT-PRE intervention in a step-wise fashion helped to demonstrate experimental control (Barlow et al., 2009; Kazdin, 2003). By staggering the introduction of TCIT phases across classrooms, phases for a classroom for which the intervention is delayed can be compared not only to other phases for the same classroom, but also to the phases of other classrooms in a different phase at the same point in time. That is, both within and across classrooms, if behavior changes occurred in the hypothesized direction while the rate of concurrent (untreated) behaviors remained relatively constant, then the changes in behavior could be attributed to the intervention (Barlow et al., 2009). It is also important to note that the order in which the intervention was delivered to each classroom (i.e., the determination of Classroom 1, 2, and 3 in each county) was based on random selection. This project was approved and conducted in compliance with the University of Nebraska-Lincoln Institutional Review Board.

## **Procedures for Teacher-Child Interaction Training – Preschool Program (TCIT-PRE)**

**TCIT-PRE coaches for the present study.** In the TCIT-PRE program, the intervention is delivered by “coaches” rather than “therapists” to reflect an ongoing, collaborative training model. In the present study, the primary investigator and two graduate student colleagues in the Clinical Psychology Training Program at the University of Nebraska-Lincoln served as TCIT-PRE coaches. As previously mentioned, the primary investigator conducted a pilot project of TCIT-PRE, and took the lead role in the training and implementation of the current TCIT-PRE intervention.

It is important to note that, not only was the classroom intervention order randomly selected (as described above), TCIT-PRE coaches were also randomly selected to one classroom in each participating county. Thus, each of the three coaches was scheduled to deliver the TCIT-PRE intervention to two classroom teachers (one teacher in County A, one teacher in County B). However, due to scheduling conflicts between the teachers and coaches, the following assignments occurred: (a) TCIT-PRE Coach #1 delivered services to three teachers (two teachers in County A, one teacher in County B); (b) TCIT-PRE Coach #2 delivered services to two teachers (one in County A, one in County B); and (c) TCIT-PRE Coach #3 delivered services to one teacher in County B.

**Setting of the TCIT-PRE Program.** The TCIT-PRE program was specifically designed to be delivered within the natural, classroom setting. Thus, the present study was conducted within the three participating Head Start Centers during regular school hours. As opposed to traditional workshops and trainings which are largely didactic and

delivered to groups of adults, the TCIT-PRE program allows Head Start teachers to learn, practice, and master skills with children from their own classroom. Additionally, delivering services within the school setting allows the TCIT-PRE coaches to provide guidance and feedback of skills during live teacher-child interactions.

Similar to PCIT, each phase of the TCIT-PRE program includes both *teaching* sessions (where TCIT-PRE skills are introduced, modeled, and role-played with the teacher) followed by *coaching* sessions (where coaches use prompting, modeling, reinforcement, and selective attention to shape teachers' utilization of TCIT-PRE skills during live teacher-child interactions). In the present study, TCIT-PRE *teaching* sessions occurred outside of the classroom environment in a designated "training room"; a separate room within the facility. The TCIT-PRE *coaching* sessions occurred both in the training room and classroom environment. To provide more details, training rooms were typically a spacious staff office or conference room located near each classroom. However, due to limited space in one Head Start setting, TCIT-PRE services were delivered in the school cafeteria (which was located adjacent to the Head Start classroom). The elementary school principal, physical education instructor, and members of housekeeping were all instrumental in making this happen in a safe and clean environment.

### **Overview of the TCIT-PRE Program**

The TCIT-PRE program was created as an adaptation of Sheila Eyberg's *Parent-Child Interaction Therapy Integrity Checklists and Session Materials* (i.e., Eyberg et al., 2009), a treatment manual available online from the University of Florida



(<http://pcit.phhp.ufl.edu>). The TCIT-PRE program was designed to be conducted over 14 sessions, with sessions occurring twice per week (i.e., total of seven weeks of teacher training). However, the TCIT-PRE model uses a data-driven rather than time-limited approach to training. Thus, graduation from the TCIT-PRE program is based on demonstrating mastery criteria of TCIT-PRE skills (which is further described below). As noted above, the TCIT-PRE intervention is delivered in two phases: (1) the Child-Directed Interaction phase, which was designed to be delivered over eight sessions; and (2) the Teacher-Directed Interaction phase which was designed to be delivered over the remaining six sessions. In the present study, advancement from the first to second phase, and progression from the second phase to graduation, was based on the demonstration of mastery level skills with an individual child (similar to PCIT).

The first phase (Child-Directed Interaction; CDI) of the TCIT-PRE program was designed to have three CDI teaching sessions and five CDI coaching sessions. The second phase (Teacher-Directed Interaction; TDI) was created with two teaching sessions and four TDI coaching sessions. Each of the CDI and TDI *teaching* sessions were two hours in length, whereas each of the CDI and TDI *coaching* sessions were one hour in length. Thus, each teacher received at least 19 hours of TCIT-PRE teaching and coaching (within the training room) during the seven-week intervention period (unless additional coaching sessions were necessary to meet mastery criteria). Additionally, after teachers were able to meet CDI mastery criteria with one child (described below), they also received one hour of live classroom coaching each week (during regular classroom hours). Teachers continued to receive weekly classroom coaching until they graduated

from the program (more details below). Much like PCIT, the TCIT-PRE program focuses on the over-learning and over-practicing of teacher-child relationship and behavior management skills during teaching and coaching sessions that will lead to increased comfort and the spontaneous use of these skills throughout the day (Hembree-Kigin & McNeil, 1995).

**Baseline observations of teacher-child interactions.** Much like PCIT, the TCIT-PRE program requires the ongoing collection of data within the training room and begins with preliminary (or baseline) observations of teacher-child interactions. In the present study, completion of baseline observations took approximately 1 ½ hours and the observations occurred one to two days prior to starting the TCIT-PRE intervention. During these baseline observations, teachers were asked to complete three standard five-minute tasks (i.e., Child Directed Interaction, Teacher Directed Interaction, and Cleanup) with an individual child, pair of children, and a small group of three children. The three tasks varied in the degree of teacher control and, for explanation purposes, the three tasks will be described using an *individual child* (the procedures for two children or small group of three children were exactly the same except more children participated).

In the first five-minute task, Child-Directed Interaction (CDI), the child was allowed to play with whatever they choose (i.e., the child picks any activity) while the teacher was asked to follow the child's lead and play along. This CDI task typically elicits positive behaviors by the child and allows the TCIT-PRE coach to observe teacher-child interactions under optimal conditions. During the second five-minute task, Teacher-Directed Interaction (TDI), the teacher was asked to choose the game or activity

and encouraged to have the child participate according to the teacher's rules. The second task is more challenging and provides an opportunity for the TCIT-PRE coach to observe: (a) strategies the teacher utilizes to encourage participation; (b) how the child responds to teacher instructions; and (c) specific disruptive and/or noncompliant behaviors exhibited by the child. In the last five-minute task, the Cleanup situation, teachers were asked to notify the child that it was time to leave the playroom and the toys must be put away. To observe the Cleanup task over a full five-minute period, the TCIT-PRE coach scattered several toys onto the floor prior to bringing the child into the training room (i.e., before the first observation task). The Cleanup situation is typically the most challenging and the teacher was instructed to have the child put away the vast majority of the toys. Not surprisingly, if the child has significant behavioral problems, they are often displayed during the Cleanup task.

After completing these three situations with an individual child, the teacher repeated the three situations with two children, and again with a small group of three children. It is important to note that the participating *individual* child and *pairs* of children were randomly selected from the classroom for these three tasks. However, the *three children* with the most challenging behaviors (as reported by the teacher) were selected as the small group of three children for baseline observations. Each child was only allowed to participate once (i.e., a child could not be selected for the individual child situations and later return in a pair or small group of three children). During the initial observation period, the teacher's verbalizations and behaviors were recorded live by the TCIT-PRE coach (using the DPICS-III) and videotaped. These initial observations

provided valuable information about the teacher's skills prior to the TCIT-PRE intervention as well as factors that may interfere with treatment progress (e.g., negative attitude toward children). More importantly, the observations served as a baseline assessment of child behaviors and teacher skills that could be used to evaluate progress during the course of the TCIT-PRE program.

As previously mentioned, classroom observations of teacher and child behaviors also occurred prior to (and throughout) the TCIT-PRE intervention. In the present study, baseline data were collected for all teachers (using the DPICS-III) and children (using the BOPS) over a five to seven week period (depending on when the intervention condition was introduced to each classroom). Classroom data were used to assess the generalization of TCIT-PRE skills from the training room to the natural classroom environment.

**TCIT-PRE Phase 1 – Child-Directed Interactions (CDI) – Eight Sessions.** The primary goal of the first phase of the TCIT-PRE program, the Child-Directed Interaction (CDI) phase, was to develop and enhance positive teacher-child relationships. Similar to PCIT, only CDI activities were performed during the first phase of the TCIT-PRE program. Previous PCIT research has shown that activities led by children (with constant attentive behaviors by the caregiver) result in enhanced positive parent-child relationships (e.g., Bell & Eyberg, 2002; Hembree-Kigin & McNeil, 1995). The other tasks (Teacher-Directed Interaction and Cleanup) are teacher driven and may result in noncompliance or other negative interactions. Therefore, those tasks were addressed during the second phase of the TCIT-PRE program.

As stated above, the TCIT-PRE program is a classroom-wide intervention. Thus, each session listed below was dedicated to providing teachers with skills to build and strengthen relationships with every child in their classroom. Initially, the CDI phase provided teachers with skills to improve teacher-child relationships with individual children. However, over time, teachers were gradually taught how to expand their use of CDI skills to improve their relationships with groups of children, which is more representative of the overall classroom environment.

***Session 1: TCIT-PRE Orientation Session (Session Length: Two Hours).*** The first session of the TCIT-PRE program occurred within a training room (i.e., available room outside the classroom) and the session was spent one-on-one with the TCIT-PRE coach and a teacher. One of the most important goals for the first session was to establish rapport with the teacher. Therefore, much of the session was spent discussing important classroom topics (e.g., what they like about teaching, what they see as the most challenging behaviors in their classroom). Other items addressed in this session included confidentiality, an overview of the TCIT-PRE program, and the structure of treatment sessions. The first session also included activities and discussions about typical social, emotional, and behavioral development in preschool children, as well as age-appropriate expectations.

Throughout the TCIT-PRE program, teachers were assigned “homework” that should be completed each day. The homework assignment for the CDI phase of the TCIT-PRE program asked the teacher to engage in “Special Time.” Special Time is a five-minute, one-on-one, child-directed interaction where the child is allowed to play

with whatever they choose while the teacher follows their lead using CDI (or PRIDE) skills which are further described below. Much like learning any new skill, the progression of TCIT-PRE skills is difficult without frequent practice outside of training sessions. Therefore, each TCIT-PRE session started with a review of homework to: (a) monitor and stress the importance of homework compliance; (b) address any questions or concerns that arise during Special Time; and (c) problem-solve difficulties with finding time (or locations) to complete homework.

At the end of the TCIT-PRE Orientation Session, teachers were asked to spend 10 minutes each day conducting “Special Time” with two different children from their classroom (i.e., five minutes per child). Since all teachers had not learned specific CDI skills, they were instructed to spend the two, five-minute periods doing “whatever you might normally do together.” These one-on-one, teacher-child homework assignments were completed outside the classroom (or in a distant corner of the classroom) to enhance the dyadic interaction without interruptions or distractions.

***Session 2: CDI Teaching Session (Session Length: Two Hours).*** The second session occurred within the training room and started with the TCIT-PRE coach collecting and reviewing homework. The second session was a two-hour, one-to-one *teaching* session (i.e., TCIT-PRE coach and a teacher) designed to help facilitate the learning of skills through didactics, modeling, and role-play. In the CDI phase, teachers learn to implement techniques described as *behavioral play therapy*. In the session, teachers were taught to attend to appropriate child behaviors (e.g., sharing, waiting patiently, playing quietly) and actively ignore attention-seeking, inappropriate child

behaviors that do not cause harm or safety concerns (e.g., whining, playing rough with toys, temper tantrums). Similar to PCIT, the skills teachers learned in the first phase of TCIT-PRE are known as the PRIDE skills – *Praise, Reflection, Imitation, Description, and Enjoyment* (formerly **E**nthusiasm; McNeil & Hembree-Kigin, 2010; PCIT International Manual, 2011). Teachers were taught to utilize the **PRIDE** skills to reward (and increase the frequency of) children’s appropriate behaviors by: (**P**) recognizing and encouraging prosocial behaviors; (**R**) utilizing active listening and reflection skills to increase appropriate verbal communication; (**I**) modeling appropriate behaviors while enjoying time with children; (**D**) conveying interest in prosocial behaviors; and (**E**) communicating excitement and pleasure about the interactions (Hembree-Kigin & McNeil, 1995).

In addition to the PRIDE skills, teachers also learned and practiced how to avoid asking questions, giving commands, or using criticism during the CDI phase of the TCIT-PRE program. More specifically, teachers learned that: (1) asking *questions* can distract or take the lead away from the child’s play and conversation; (2) giving *commands* not only takes the lead away from the child, but may result in noncompliance and possibly hurt the teacher-child relationship; and (3) *criticizing* children’s behaviors, even subtly, can cause unpleasant interactions. Additionally, criticism is often not effective for decreasing disruptive behavior with children who have behavior problems because it involves negative attention, which can serve as a powerful reinforcer (Hembree-Kigin & McNeil, 1995).

At the end of the CDI Teaching Session, teachers were asked to practice their newly learned PRIDE skills during 10 minutes of “Special Time” each day with two different children (five minutes per child). Again, these one-on-one, teacher-child homework assignments were completed outside the classroom (or in a distant corner of the classroom) to enhance the dyadic interaction without interruptions or distractions.

Most of the remaining sessions within the first phase of TCIT-PRE program were *coaching* sessions. A hallmark of the TCIT-PRE (and PCIT) programs is the use of constructive, positive, in-vivo coaching of teachers (or caregivers). Using arguments originally proposed for PCIT by Hembree-Kigin and McNeil (1995), direct coaching has five advantages over the more traditional methods of training (e.g., didactic instruction, modeling, rehearsal): (1) direct coaching allows the coach to correct errors quickly so teachers do not repeatedly practice incorrect techniques; (2) the method allows the coach to adapt the skills being taught to manage unique behavior problems as they arise; (3) direct observation and coaching decreases the need to rely on self-reported utilization of skills in the classroom; (4) immediate, positive feedback by the coach can prompt, shape, and reinforce the teacher’s appropriate skill usage; and (5) as teachers become more adept at using the newly trained skills, the coach can fade out prompts.

In the present study, at least 30 minutes of each TCIT-PRE *coaching* session was devoted to the live coaching and feedback of TCIT-PRE skills. While the use of a direct coaching model is not a new idea for teacher/caregiver training, the direct coaching model is rarely used by teacher training programs. The TCIT-PRE direct coaching model was characterized by the TCIT-PRE coach giving in-vivo direct instructions/feedback



while the teachers were interacting with children. Live coaching allowed the TCIT-PRE coach to provide specific, immediate, and frequent feedback to teachers. The feedback provided to teachers included suggestions to improve teacher-child relationships in the first phase of TCIT-PRE, and behavior management skills in the second phase (described below).

***Session 3: CDI Coaching Session #1 (Session Length: One Hour).*** The third session of the TCIT-PRE intervention, CDI Coaching Session #1, occurred within the training room and started with the collection and review of the homework assignment. Next, the teacher's utilization of TCIT-PRE skills was assessed by observing the teacher and an individual child completing the Child Directed Interaction task for a five-minute period. As previously described, Child Directed Interaction activities allow the child to play with whatever they choose while the teacher was asked to follow the child's lead and use their PRIDE skills. During the initial observation period, the TCIT-PRE coach remained silent (did not provide coaching or feedback) while coding the teacher's utilization of the PRIDE skills. At the end of the initial five-minute observation period, the individual child returned to the classroom and the TCIT-PRE coach and teacher briefly discussed the teacher's utilization of PRIDE skills and the format of the session.

The rest of the session (approximately 30 minutes) was spent coaching the teacher's use of PRIDE skills with *individual* children. More specifically, an individual child was brought into the training room for a period of approximately 10 minutes. During that time, the TCIT-PRE coach provided live coaching to the teacher as they interacted with the child. The two areas of emphasis for CDI Coaching Session #1 were:

(a) encouraging and praising good behavioral descriptions; and (b) praising the teacher for ignoring negative behaviors. However, if the teacher had already demonstrated frequent use of behavioral descriptions, other PRIDE skills (e.g., labeled praise, reflections) were emphasized. At the end of 10 minutes, the first child returned to the classroom and the TCIT-PRE coach and teacher debriefed for approximately five minutes. Next, a different child was selected from the classroom and the process was repeated (i.e., 10 minutes of coaching, 5 minutes of feedback). For homework, the teacher was asked to continue to practice using PRIDE skills during 10 minutes of “Special Time” each day with two different children (five minutes per child). Again, these one-on-one, teacher-child homework assignments were completed in a training room (or distant corner of the classroom) to enhance the dyadic interaction without interruptions or distractions.

***Session 4: CDI Coaching Session #2 (Session Length: One Hour).*** Similar to the previous session, CDI Coaching Session #2 occurred within a training room and started with the collection and review of homework. Next, the teacher’s utilization of TCIT-PRE skills was assessed by observing the teacher and an individual child completing the Child Directed Interaction task for a five-minute period. During the initial observation period, the TCIT-PRE coach remained silent (did not provide coaching or feedback) and recorded the teacher’s utilization of the PRIDE skills. At the end of the initial five-minute observation period, the individual child returned to the classroom and the TCIT-PRE coach and teacher briefly discussed the teacher’s utilization of PRIDE skills and the format of the session.

The remaining time in the session was spent coaching the teacher's use of PRIDE skills with an individual child. Similar to the last session, an individual child was brought into the training room for a period of approximately 10 minutes. During that time, the TCIT-PRE coach provided live coaching as the teacher interacted with the child. The two areas of emphasis for CDI Coaching Session #2 were: (a) increasing the use of reflections; and (b) decreasing questions. However, if the teacher had already demonstrated frequent use of reflections and/or limited use of questions, other PRIDE skills (e.g., labeled praise, behavior descriptions) were emphasized. At the end of 10 minutes, the child returned to the classroom and the TCIT coach and teacher debriefed for approximately five minutes. Next, a different child was selected from the classroom, brought to the training room, and the coaching process was repeated. For homework, teachers were asked to continue to practice using PRIDE skills during 10 minutes of "Special Time" each day with two different children (five minutes per child) in the training room or low distraction environment.

***Session 5: CDI Coaching Session #3 (Session Length: One Hour).*** Similar to the previous session, CDI Coaching Session #3 occurred within a training room and started with the collection and review of homework. Next, the teacher's utilization of TCIT-PRE skills was assessed by observing the teacher and an individual child completing the Child Directed Interaction task for a five-minute period. During the initial observation period, the TCIT-PRE coach remained silent (did not provide coaching or feedback) and recorded the teacher's utilization of the PRIDE skills. At the end of the initial five-minute observation period, the individual child returned to the classroom and

the TCIT-PRE coach and teacher briefly discussed the teacher's utilization of PRIDE skills and the format of the session.

Similar to previous sessions, the remaining time in the session was spent coaching the teacher's use of PRIDE skills with an individual child. First off, an individual child was brought into the training room for a period of approximately 10 minutes. During that time, the TCIT-PRE coach provided live coaching to the teacher as they interacted with the child. The main area of emphasis for CDI Coaching Session #3 was increasing the use of labeled praise. However, if the teacher had already demonstrated frequent use of labeled praise, other PRIDE skills (e.g., reflections, behavior descriptions) were emphasized. At the end of 10 minutes, the child returned to the classroom and the TCIT coach and teacher debriefed for approximately five minutes. Next, a different child was selected from the classroom, brought to the training room, and the coaching process was repeated. For homework, the teacher was asked to continue to practice using PRIDE skills during 10 minutes of "Special Time" each day with two different children (five minutes per child) in the training room or low distraction environment.

Notably, the TCIT-PRE program is a mastery-based, rather than time-limited, intervention. Before progressing to the next phase of the TCIT-PRE intervention (i.e., utilizing PRIDE skills with multiple children), teachers in the present study had to demonstrate specific behavioral goals (i.e., CDI mastery criteria) with an *individual* child. Similar to PCIT, teachers in the TCIT-PRE program had to demonstrate at least 10 labeled praises, 10 behavioral descriptions, 10 reflective statements, and no more than a total of 3 questions, commands, or criticisms during a single, five-minute observational

period. Assessment of mastery skills was completed with an individual child who was randomly selected from the teacher's classroom. The mastery level assessment with an individual child was coded by both the TCIT coach and a trained research assistant (via videotape) to ensure that teachers met criteria.

Mastery criteria of CDI skills could be demonstrated by teachers as early as CDI Coaching Session #1, but usually takes more time to achieve. In the present study, all three teachers in County A achieved mastery prior to Session 6 (one teacher met criteria in CDI Coaching #2 the other two teachers met criteria in CDI Coaching #3). However, all three teachers in County B needed two additional CDI Coaching Sessions (an additional week) to meet CDI mastery criteria (i.e., met criteria in CDI Coaching #5). The TCIT-PRE manual (Campbell et al., 2011) includes additional, one-hour CDI Coaching Sessions that were utilized for teachers in County B. The additional CDI Coaching Sessions were flexibly designed so that teachers could continue to practice (and receive guidance/feedback) on the skill(s) that were still necessary for mastery.

***Session 6: CDI Teaching Session with Multiple Children (Session Length: Two Hours).*** The sixth session was the third and final *teaching* session within the CDI phase of the TCIT-PRE program. This teaching session was a two-hour, one-to-one interaction (i.e., TCIT-PRE coach and a teacher) designed to help facilitate the learning and utilization of CDI (PRIDE) skills with multiple children. This goal was accomplished by teaching, modeling, and role-playing skills with a TCIT-PRE coach. To aid the learning of PRIDE skills with multiple children, research assistants joined this session and assisted with role-play scenarios. For homework, the teacher was asked to practice using PRIDE

skills during 10 minutes of “Special Time” each day with two different *pairs* of participating children (five minutes per pair). As usual, these homework assignments were completed away from the general classroom environment to limit interruptions or distractions.

After teachers demonstrated mastery criteria with an individual child, and completed the CDI Teaching Session with Multiple Kids, the TCIT-PRE coach started to deliver live classroom coaching sessions. Classroom coaching sessions occurred in the natural classroom environment during regular school hours with all children. These classroom coaching sessions were delivered two times per week for a total of one hour per week (i.e., 30 minutes per visit). Classroom coaching occurred during instructional periods (e.g., circle time, daily lessons), free time (e.g., activity stations), and meals (e.g., breakfast and lunch). Teachers were coached inside their classroom environment, guiding children to different locations (e.g., walking down the hallway), as well as outside. In the present study, two-way radios with earpieces were utilized for classroom coaching.

***Session 7: CDI Coaching with Multiple Children Session #1 (Session Length: One Hour).*** The seventh session, CDI Coaching Multiple Children #1, occurred within a training room and started with the collection and review of homework. Next, the teacher’s utilization of TCIT-PRE skills with multiple children was assessed by observing the teacher and *pairs* of children completing the Child Directed Interaction task for a five-minute period. During the initial observation period, the TCIT-PRE coach remained silent (did not provide coaching or feedback) and recorded the teacher’s utilization of the PRIDE skills. At the end of the initial five-minute observation period,

the two children returned to their classroom and the TCIT-PRE coach and teacher briefly discussed the teacher's utilization of PRIDE skills and the format of the session.

The rest of the session (approximately 30 minutes) was spent coaching the teacher's use of PRIDE skills with *pairs* of children. More specifically, two children were brought into the training room for a period of approximately 10 minutes. During that time, the TCIT-PRE coach provided live coaching to the teacher as they interacted with two children. The main area of emphasis for CDI Coaching Multiple Children #1 was balancing the utilization of PRIDE skills between two children. At the end of 10 minutes, the two children returned to the classroom and the TCIT-PRE coach and teacher debriefed for approximately five minutes. Then a different pair of children was selected and the process was repeated. For homework, the teacher was asked to practice using PRIDE skills during 10 minutes of "Special Time" each day with two different *pairs* of participating children (five minutes per pair).

***Session 8: CDI Coaching with Multiple Children Session #2 (Session Length: One Hour)***. The eighth session represented the final session in the CDI phase of the TCIT-PRE program. This session occurred within a training room and started with the collection and review of homework. Next, the teacher's utilization of TCIT-PRE skills with multiple children was assessed by observing the teacher and *groups of three children* completing the Child Directed Interaction task for a five-minute period. During the initial observation period, the TCIT-PRE coach remained silent (did not provide coaching or feedback) and recorded the teacher's utilization of the PRIDE skills. At the end of the initial five-minute observation period, the three children returned to their

classroom and the TCIT-PRE coach and teacher briefly discussed the teacher's utilization of PRIDE skills and the format of the session.

The rest of the session (approximately 30 minutes) was spent coaching the teacher's use of PRIDE skills with *groups of three children*. More specifically, three children were brought into the training room for a period of approximately 10 minutes. During that time, the TCIT-PRE coach provided live coaching to the teacher as they interacted with three children. The main area of emphasis for CDI Coaching Multiple Children #2 was balancing the utilization of PRIDE skills between three children. At the end of 10 minutes, the three children returned to the classroom and the TCIT-PRE coach and teacher debriefed for approximately five minutes. Then a different group of three children was selected and the process was repeated. For homework, the teacher was asked to continue to practice using PRIDE skills during 10 minutes of "Special Time" each day with *small groups of three* participating children (five minutes per group).

As stated above, the TCIT-PRE program is a mastery-based, rather than time-limited, intervention. In the present study, progression from the first phase (Child-Direct phase) to the second phase (Teacher-Directed phase) of TCIT-PRE was based on the demonstration of CDI skill mastery with an *individual* child during the five-minute observational period that occurred at the beginning of a session. That decision was based on the fact that, to date, no literature exists on the demonstration of PCIT or TCIT skills with multiple children. However, based on the results of the present study, future TCIT-PRE programs will require teachers to demonstrate CDI skill mastery criteria with



individual, pairs, and groups of three children before advancing to the Teacher-Directed Interaction phase of the program.

### **TCIT-PRE Phase 2 – Teacher-Directed Interactions (TDI) – Six Sessions.**

The essence of the second phase of the TCIT-PRE program, called Teacher-Directed Interaction (TDI), is to develop and enhance behavior management skills. Each session is dedicated to providing teachers with reasonable, age-appropriate behavior management skills that can be used within the context of a positive teacher-child relationship. Much like PCIT, in the TDI phase of TCIT-PRE, coaches assist preschool teachers with problematic situations by enhancing teachers' abilities to set consistent and fair limits, follow through with directives in a predictable manner, and provide reasonable, age-appropriate consequences for misbehavior within the context of a positive teacher-child relationship (Herschell & McNeil, 2005). Both the PCIT and TCIT-PRE programs are *unique* in that compliance is treated as a skill that can, and should be practiced regularly. In the TDI phase teachers, are taught “daily minding exercises” that are arranged so children over-practice following directions, first with easy tasks and then with more difficult ones. In this manner, the behavior management skills are *not used reactively* to manage noncompliance, but *proactively* to practice building compliance skills.

#### ***Session 9: TDI Teaching Session - Commands (Session Length: Two Hours).***

The ninth session occurred in a training room (i.e., available room outside the classroom) and started with the collection and review of homework. The ninth session was a two-hour, one-to-one *teaching* session (i.e., TCIT-PRE coach and a teacher) in which teachers were taught the procedures for giving effective commands. Effective commands are

statements that directly specify the response expected from the child (i.e., the command tells the child what *to do* rather than what not to do).

Further, teachers learned how to: (a) use direct rather than indirect commands (e.g., “please put the block in the box” versus “can you put the block away?”); (b) state commands in a positive manner (e.g., “please sit down beside me”); (c) give commands one at a time; (d) use specific rather than vague commands (e.g., “sit quietly on your mat” versus “settle down”); (e) deliver age-appropriate commands; (f) express commands in a normal and calm tone of voice; (g) provide explanations either before a command is issued (e.g., “It is cold outside, please put your coat on”) or after the child has complied with the command (“thank you for putting your coat on, it is cold outside”); and (h) give direct commands only when necessary. In Session 9, effective commands were taught, discussed, modeled, and role-played with the teacher. For homework, teachers were asked to continue to practice using PRIDE skills during 10 minutes of “Special Time” each day with *small groups of three* participating children (five minutes per group) outside of the classroom. In addition, teachers were asked to monitor and record the types of commands they give, over a five-minute period, each day in the classroom.

***Session 10: TDI Coaching Session #1 (Session Length: One Hour).*** The 10<sup>th</sup> session occurred within a training room and started with the collection and review of homework. Next, the TCIT-PRE coach and teacher reviewed the eight guidelines of effective commands (described above). The rest of the session (approximately 30 minutes) was spent coaching the teacher’s use of effective commands with an *individual* child. More specifically, an individual child was brought into the training room for a

period of approximately 10 minutes. During that time, the TCIT-PRE coach provided live coaching to the teacher as they interacted with an individual child. The main areas of emphasis for the session was to ensure that teachers: (a) delivered commands that were direct, age-appropriate, and stated in a positive manner; and (b) continued to utilize PRIDE skills between commands. At the end of 10 minutes, the child was returned to the classroom and the TCIT-PRE coach and teacher debriefed for approximately five minutes. Then a different child was selected from the classroom and the process was repeated.

For homework, the teacher was asked to continue to practice using PRIDE skills during 10 minutes of “Special Time” each day with *groups of three children* (five minutes per group) outside of the classroom. In addition, teachers were asked to complete 10 minutes of Special Time each day with an *individual* child. During the first five minutes, teachers practiced only utilizing the PRIDE skills. In the second five minute period, teachers were asked to practice giving effective commands to the child, with at least 20 seconds of PRIDE skills between each command. If the child complied with commands during the second five-minute period, teachers were encouraged to provide labeled praise (e.g., “thanks for listening!”). If the child did not comply, teachers were encouraged to ignore the noncompliance and continue to play.

***Session 11: TDI Teaching Session – Pause & Replay (Session Length: Two Hours).*** The 11<sup>th</sup> session occurred in a training room (i.e., available room outside the classroom) and started with the collection and review of homework. If necessary, TCIT-

PRE coaches spent additional time with teachers at the start of this session to address any noncompliance that occurred during the homework assignment. The 11<sup>th</sup> session was a two-hour, one-to-one *teaching* session (i.e., TCIT-PRE coach and a teacher) in which teachers were taught a standardized behavior management strategy, the *Pause and Replay*<sup>2</sup> procedure. Pause and Replay is a specialized behavior management procedure for severe misbehavior (e.g., aggressive behavior, destructive behavior) which involves removing attention and access to activities for a brief period of time.

The Pause and Replay sequence is a highly systematic process which takes time for teachers to master. An important feature of the Teacher-Directed Interaction phase of the TCIT- PRE program is that teachers rehearse the steps of the Pause and Replay technique with their class *prior to* its actual use. That is, the Pause and Replay sequence (and expected behaviors) are explained to children at a neutral time, rather than in the midst of a negative interaction. To help facilitate learning the proper Pause and Replay sequence, most of the 11<sup>th</sup> session in the present study was spent role-playing the Pause and Replay procedures with teachers.

It is important to note that teachers were not permitted to use the Pause and Replay procedure until they were able to consistently demonstrate the sequence to TCIT-PRE coaches. More specifically, teachers needed to: (a) appropriately explain the Pause and Replay sequence to children outside of a negative interaction; and (b) demonstrate the appropriate use of Pause and Replay skills to the TCIT-PRE coach with a child. Thus, the homework for the 11<sup>th</sup> session remained the same as the 10<sup>th</sup> session. That is, teachers

<sup>2</sup> Note. In the present study, the standardized behavior management strategy was called “Sit and Watch.” However, the DePaul Universal Prevention Model utilizes the same name (and different technique). Therefore, the name was changed to Pause and Replay but the technique remained the exact same.

were asked to continue to practice using PRIDE skills during 10 minutes of “Special Time” each day with *groups of three children* (five minutes per group) outside of the classroom. In addition, teachers completed 10 minutes of Special Time each day with an *individual* child. During the first five minutes, teachers practiced only utilizing the PRIDE skills. In the second five minute period, teachers practiced giving effective commands, with at least 20 seconds of PRIDE skills between each command. If the child complied with commands during the second five-minute period, teachers were encouraged to provide labeled praise (e.g., “good listening!”). If the child did not comply, teachers were encouraged to ignore the noncompliance and continue to play.

***Session 12: TDI Coaching Session #2 (Session Length: One Hour).*** The 12<sup>th</sup> session occurred within a training room and started with the collection and review of the homework task. Different from previous sessions, the TDI Coaching Session #2 did not begin with a five-minute observational period. Instead, coaching immediately began with an *individual* child. This allowed more time to review the Pause and Replay procedure and ensured that the Pause and Replay sequence was coached correctly from the beginning. In fact, the entire session was spent coaching the teacher’s use of Pause and Replay strategies with an individual child.

More specifically, an individual child was brought into the training room for a period of approximately 10 minutes. During that time, the TCIT-PRE coach provided live coaching to the teacher as they interacted with an individual child. The areas of emphasis for the teacher were: (a) clearly explaining the Pause and Replay sequence to the child; (b) demonstrating PRIDE skills during play activities; (c) occasionally delivering direct

commands that are age-appropriate and positively stated; (d) delivering clear two-choices statements if noncompliance occurred; (e) appropriately following through with two-choices statements (i.e., labeled praise for compliance, “Slow Down Station” for noncompliance); and (f) successfully completing the entire Pause and Replay sequence if necessary (i.e., the interaction must end with acknowledgement for compliance to the original command and a labeled praise for compliance to a new command). At the end of 10 minutes (or after the Pause and Replay sequence was completed), the child returned to the classroom and the TCIT-PRE coach and teacher debriefed for approximately five minutes. Then a different child was selected and the process was repeated.

For homework, teachers were asked to continue to practice using PRIDE skills during 10 minutes of “Special Time” each day with *small groups of three* participating children (five minutes per group) outside of the classroom. In addition, teachers who effectively demonstrated all components of the Pause and Replay technique (e.g., explanation to the child, effective commands, two-choice warnings for initial noncompliance, and utilization of the Slow Down Station, if necessary) were encouraged to utilize these techniques with an individual child. These teachers were asked to complete 10 minutes of Special Time each day with an *individual* child. During the first five minutes, the teachers practiced utilizing the PRIDE skills. During the second five-minute period, teachers were encouraged to practice TDI skills by delivering at least five effective commands to the child (with at least 20 seconds of PRIDE skills between each command) and, if necessary, utilizing the Pause and Replay procedure.

Teachers who did not demonstrate the proper use of the Pause and Replay sequence were prohibited from using the procedure in their homework sessions. These teachers were asked to continue to practice using PRIDE skills during 10 minutes of “Special Time” each day with *small groups of three* participating children (five minutes per group) outside of the classroom. In addition, these teachers practiced using PRIDE skills during 10 minutes of “Special Time” each day with two different children (five minutes per child). Teachers were discouraged from using commands, as any noncompliance could be confusing for teachers (and any child who had learned the expectations of the Pause and Replay sequence).

***Session 13: TDI Coaching Session #3 (Session Length: One Hour).*** The 13<sup>th</sup> session occurred within a training room and started with the collection and review of homework. If necessary, TCIT-PRE coaches spent additional time with teachers at the start of this session to address any noncompliance that occurred during the homework assignment (particularly if the teachers used the Pause and Replay technique). Next, the teacher’s utilization of CDI skills was assessed by observing the teacher and an *individual* child completing the Child Directed Interaction task for a five-minute period. Immediately afterwards, the teacher’s utilization of TDI skills was assessed by observing the teacher and the same child completing the Teacher Directed Interaction task (i.e., the teacher chose the activity and gets the child to follow their rules) for a five-minute period. During both the CDI and TDI task, the TCIT-PRE coach remained silent (did not provide coaching or feedback) and recorded the teacher’s utilization of TCIT-PRE skills. At the end of the two observational periods, the child returned to their classroom and the TCIT-

PRE coach and teacher briefly discussed the teacher's utilization of skills and session format.

The rest of the session was spent coaching the teacher's use of Pause and Replay strategies with *pairs* of children. More specifically, two children were brought into the training room for a period of approximately 10 minutes. During that time, the TCIT-PRE coach provided live coaching to the teacher as they interacted with two children. The areas of emphasis for the teacher were: (a) clearly explaining the Pause and Replay sequence to two children; (b) balancing PRIDE skills during play activities; (c) occasionally delivering direct commands that are age-appropriate and positively stated; (d) delivering clear two-choices statements (if noncompliance occurred); (e) appropriately following through with two-choices statements (i.e., labeled praise for compliance, "Slow Down Station" for noncompliance); and (f) successfully completing the entire Pause and Replay sequence if necessary (i.e., the interaction must end with acknowledgement for compliance to the original command and a labeled praise for compliance to a new command). At the end of 10 minutes (or after the Pause and Replay sequence was completed), the two children returned to their classroom and the TCIT-PRE coach and teacher debriefed for approximately five minutes. Then two different children were selected and the process was repeated.

For homework, teachers were asked to continue to practice using PRIDE skills during 10 minutes of "Special Time" each day with *small groups of three* participating children (five minutes per group) outside of the classroom. In addition, teachers who effectively demonstrated all components of the Pause and Replay technique (e.g.,



explanation to the child, effective commands, two-choice warnings for initial noncompliance, and utilization of the Slow Down Station, if necessary) utilized these techniques with an individual child. These teachers were asked to complete 10 minutes of Special Time each day with an *individual* child. During the first five minutes, the teachers practiced utilizing the PRIDE skills. During the second five-minute period, teachers practiced TDI skills by delivering at least five effective commands to the child (with at least 20 seconds of PRIDE skills between each command) and, if necessary, utilizing the Pause and Replay procedure.

Teachers who did not demonstrate the proper use of the Pause and Replay sequence were prohibited from using the procedure in their homework sessions. These teachers were asked to continue to practice using PRIDE skills during 10 minutes of “Special Time” each day with *small groups of three* participating children (five minutes per group) outside of the classroom. In addition, these teachers practiced using PRIDE skills during 10 minutes of “Special Time” each day with two different children (five minutes per child). Teachers were discouraged from using commands, as any noncompliance could be confusing for teachers (and any child who had learned the expectations of the Pause and Replay sequence).

***Session 14: TDI Coaching Session #4 (Session Length: One Hour).*** The 14<sup>th</sup> session occurred within a training room and started with the collection and review of homework. If necessary, TCIT-PRE coaches spent additional time with teachers at the start of this session to address any noncompliance that occurred during the homework assignment (particularly if the teachers used the Pause and Replay technique). Next, the

teacher's utilization of CDI skills was assessed by observing the teacher and an *individual* child completing the Child Directed Interaction task for a five-minute period. Immediately afterwards, the teacher's utilization of TDI skills was assessed by observing the teacher and the same child completing the Teacher Directed Interaction task for a five-minute period. During both the CDI and TDI task, the TCIT-PRE coach remained silent (dis not provide coaching or feedback) and recorded the teacher's utilization of TCIT-PRE skills. At the end of the two observational periods, the child returned to their classroom and the TCIT-PRE coach and teacher briefly discussed the teacher's utilization of skills and the session format.

The rest of the session was spent coaching the teacher's use of Pause and Replay strategies with *groups of three children*. More specifically, three children were brought into the training room for a period of approximately 10 minutes. During that time, the TCIT-PRE coach provided live coaching to the teacher as they interacted with three children. The areas of emphasis for the teacher were: (a) clearly explaining the Pause and Replay sequence to three children; (b) balancing PRIDE skills during play activities; (c) occasionally delivering direct commands that are age-appropriate and positively stated; (d) delivering clear two-choices statements (if noncompliance occurred); (e) appropriately following through with two-choices statements (i.e., labeled praise for compliance, "Slow Down Station" for noncompliance); and (f) successfully completing the entire Pause and Replay sequence if necessary (i.e., the interaction must end with acknowledgement for compliance to the original command and a labeled praise for compliance to a new command). At the end of 10 minutes (or after the Pause and Replay

sequence is completed), the three children returned to their classroom and the TCIT-PRE coach and teacher debriefed for approximately five minutes. Then a different group of three children was selected and the process was repeated.

For homework, teachers were asked to continue to practice using PRIDE skills during 10 minutes of “Special Time” each day with *small groups of three* participating children (five minutes per group) outside of the classroom. In addition, teachers who effectively demonstrated all components of the Pause and Replay technique (e.g., explanation to the child, effective commands, two-choice warnings for initial noncompliance, and utilization of the Slow Down Station, if necessary) were encouraged to utilize these techniques with an individual child. These teachers were asked to complete 10 minutes of Special Time each day with an *individual* child. During the first five minutes, teachers practiced utilizing the PRIDE skills. During the second five-minute period, teachers practiced TDI skills by delivering at least five effective commands to the child (with at least 20 seconds of PRIDE skills between each command) and, if necessary, utilizing the Pause and Replay procedure.

Teachers who did not demonstrate the proper use of the Pause and Replay sequence were prohibited from using the procedure in their homework sessions. These teachers were asked to continue to practice using PRIDE skills during 10 minutes of “Special Time” each day with *small groups of three* participating children (five minutes per group) outside of the classroom. In addition, these teachers practiced using PRIDE skills during 10 minutes of “Special Time” each day with two different children (five minutes per child). Teachers were discouraged from using commands, as any

noncompliance could be confusing for teachers (and any child who had learned the expectations of the Pause and Replay sequence).

As previously stated, the TCIT-PRE program is a mastery-based, rather than time-limited, intervention. Before graduating from the TCIT-PRE program, teachers must meet criteria for TDI skill mastery during the initial, five-minute observation period that occurs at the beginning of a session. In the present study, mastery criteria for the TDI phase was based on the demonstration of specific behavioral goals with an *individual* child during the TDI five-minute observational period. Similar to PCIT, the criteria for TDI skills mastery during the initial five-minute observational period was the following: (a) teachers had to deliver at least four commands; (b) at least 75% of the teacher's commands were effective (i.e., direct commands that were age-appropriate, positively stated, and provided an opportunity for the child to comply or not comply); and (c) at least 75% of the time, teachers appropriately followed through with their commands (i.e., labeled praise for compliance, Pause and Replay procedures for noncompliance). In addition, teachers had to successfully verbalize and demonstrate the proper Pause and Replay procedures before graduating from the TCIT-PRE program.

The decision to have teachers meet TDI mastery criteria with an individual child was based on the fact that, to date, no literature exists on the demonstration of PCIT or TCIT skills with multiple children. However, based on the results of the present study, future TCIT-PRE programs will require teachers to demonstrate TDI skill mastery criteria with individual, pairs, and groups of three children before graduating from the program. If teachers do not meet mastery criteria with individual, pairs, or groups of three

children, they will complete additional, one-hour coaching sessions that are available in the TCIT-PRE manual (Campbell et al., 2011). These additional TDI Coaching Sessions are flexibly designed so teachers can continue to practice (and receive guidance/feedback) on the skill(s) that are still necessary for mastery with children.

***Graduation Session (Session Length: One Hour).*** The last session, the graduation session, served as the post-treatment assessment of TCIT-PRE skills. Thus, teachers were again be asked to perform the three standard five-minute tasks (i.e., Child Directed Interaction, Teacher Directed Interaction, and Cleanup) with an individual, pair, and small group of three children. The graduation session also allowed an opportunity for the TCIT-PRE coaches to recognize each teacher's efforts with an official certificate of completion. The final session also served as a review session and provided teachers with an opportunity to ask questions and address final concerns.

**Treatment integrity.** Each session of the TCIT-PRE manual (Campbell et al., 2011) includes a treatment integrity checklist at the end of each session to increase the likelihood that specific information was covered with teachers. In the present study, all of the TCIT-PRE teaching and coaching sessions were recorded on videotapes.

Undergraduate research assistants on the Coding Team (described below) later coded 100% of the teaching sessions and coaching sessions by each TCIT-PRE coach to assess adherence to the TCIT treatment protocol. Treatment integrity was monitored during the intervention and when integrity fell below 85% during any session, all TCIT-PRE coaches met to review procedures and discuss the possibility of additional training.

In the present study, integrity results fell below 85% for TCIT Coach #1 on a total of two occasions (single instances with two different teachers). One instance involved an emotional conversation with the Head Start teacher who described interpersonal problems with other teachers/administration, and the second incident was the first teaching session with a different teacher who had a numerous questions. Integrity results for TCIT Coach #2 were always above 85% with the exception of one session (first teaching session with a teacher). Integrity results for TCIT Coach #3 fell below 85% on four different occasions with the same teacher. The majority of these sessions happened early in the TCIT-PRE program and were discussed (and addressed) in weekly supervision. After the initial sessions, the content/structure of each session was routinely reviewed with Coach #3 prior to each session to improve integrity. It is important to note that the TDI Teaching Session – Pause & Replay took two sessions (total of three hours) for Coach #3 to complete which resulted in the loss of an entire TDI coaching session. Overall integrity results were as follows: Coach #1 = 96%, Coach #2 = 97%, and Coach #3 = 88%.

### **Procedures for Data Collection**

**Preparation and training of research assistants.** The 20 undergraduate research assistants who assisted with this project were divided into three teams: (1) an Observation Team; (2) a Coding Team; and (3) a Data Entry Team. Approximately half of the research assistants participated in the project as part of a 3-credit hour independent study course at UNL, while the remaining half participated in the project as volunteers.

***Observation Team.*** Training for the *Observation Team* of undergraduate research assistants started three months prior to baseline observations. Training involved

numerous didactic sessions, as well as watching, discussing, and coding sample videos with the primary investigator. Additionally, research assistants practiced coding children at Head Start Centers and discussing codes with the primary investigator and other research assistants. All research assistants on the Observation Team trained together as a large group to maintain consistency and improve inter-observer reliability. The Observation Team was uninformed about the treatment design and procedures, and met separately from the Coding and Data Entry Teams to reduce the possibility of bias. Prior to the baseline phase of the TCIT-PRE program, the Observation Team met with the primary investigator on a regular basis (two to three times per week) for orientation and training. Once the baseline phase had been initiated (and throughout the rest of the project) the Observation Team met on a weekly basis to address any questions and problem-solve any concerns.

All research assistants on the Observational Team were trained to reliably code Head Start children's prosocial and challenging behaviors utilizing the BOPS. Additionally, most of the research assistants (60%) were trained to reliably code teacher's verbalizations using the DPICS-III coding system. Competency was considered at 85% mastery for both BOPS and DPICS-III coding systems. The reliability of observational coding by research assistants on the Observation Team was routinely assessed throughout the study, and inter-observer coding between research assistants was regularly scheduled. If the reliability fell below 85% during any coding period, the two research assistants met with the primary investigator to review coding and/or receive additional training.

Altogether 10 research assistants comprised the Observation Team. Because the team conducted live observations using the DPICS-III and BOPS, it was not surprising when eight out of 10 individuals did not meet 85% reliability during their first interobserver BOPS assessment; and five individuals did not meet 85% reliability on the DPICS-III. When this occurred, all members reviewed and discussed codes during an extended weekly team meeting. During the second interobserver assessment all Observation Team members were above 85% on the BOPS, but four team members were below 85% on the DPICS-III. When this occurred, those four team members only coded child behaviors and did not code teachers for the next week. Those members completed additional classroom training and homework assignments to improve their knowledge and understanding of codes. The additional training included coding of videotaped TCIT-PRE sessions to assess reliability. After the additional training, three out of four team members were reliable above 85%. The one individual that did not meet criteria continued to train on the DPICS-III for a period of two weeks and only coded child classroom behaviors. After two weeks of training, the research assistant was able to meet 85% reliability with several assistants and returned to coding both teacher and child behaviors.

During subsequent interobserver evaluations, reliability improved. When differences occurred it was generally due to a single behavior that was continuously coded differently by the two assistants. Consistent problems were discussed with both the individuals and the team during weekly meetings. Overall, 38 out of 50 DPICS-III



observations (76%) and 54 out of 67 BOPS observations (80.6%) were above 85% reliability.

It is important to note that, throughout the entire study, no details about classroom observations were ever shared with the Head Start teachers. That is, teachers did not know: (a) when they were being observed, (b) the specific behaviors being observed by the trained undergraduate research assistants, and (c) the results of the classroom observations. Keeping in mind that all participating children and teachers were observed twice per week (on average), the Observation Team was specifically trained in a variety of techniques to limit reactivity to observations. For instance, observers were trained to: (a) watch a specific child, rather than staring at a teacher, when coding teacher verbalizations; (b) never show their coding sheets to anyone and keep their sheets close to their bodies as they recorded behaviors; (c) stand as far away from teachers and children as possible without missing any verbalizations or behaviors. Because the TCIT-PRE coaches were conducting the program at each of the three Head Start facilities, members of the Observation Team were regularly observed by TCIT-PRE coaches. The research assistants were always observed following the proper procedures and the Head Start teachers/administration frequently commented on how professional the assistants were in their duties (e.g., never interacted with teachers or children, did not disrupt classroom activities).

***Coding Team.*** Training for the *Coding Team* of undergraduate research assistants started immediately after the first session of the TCIT-PRE intervention (i.e., TCIT-PRE Orientation Session). Training for the Coding Team involved numerous didactic sessions,

as well as watching, discussing, and coding sample videos with the primary investigator. During their initial orientation and training, the Coding Team met with the primary investigator on a regular basis (one to two times per week). Following training, the Coding Team met on a weekly basis to address any questions and problem-solve any concerns. The Coding Team was responsible for: (a) coding teacher verbalizations in the training room; and (b) evaluating treatment integrity by observing each session to assess each TCIT-PRE coach's adherence to the TCIT treatment protocol. Thus, the Coding Team was informed about the treatment design and procedures, and met separately from the Observation and Data Entry Teams to reduce the likelihood of bias.

All research assistants on the Coding Team were trained to reliably code teacher's verbalizations using the DPICS-III coding system. Competency was considered at 85% mastery for the DPICS-III coding system. The reliability of coding by research assistants on the Coding Team was routinely assessed throughout the study. If the reliability was below 85% during any coding period, the two research assistants met with the primary investigator to review coding and/or receive additional training.

Altogether six research assistants comprised the Coding Team. During the first interobserver evaluation four out of six individuals did not meet 85% reliability. When this occurred, all members reviewed and discussed codes during an extended weekly team meeting. During the second interobserver assessment two team members did not meet 85% reliability. Those two completed additional classroom training and homework assignments to improve their knowledge and understanding of codes. The additional

training included coding of additional videotaped sessions to assess reliability. After the additional training, all team members were able to meet the 85% reliability criteria.

During subsequent interobserver evaluations, team members periodically did not meet 85% reliability. For the most part, this occurred with a teacher who spoke very softly in sessions and, at times, was completely inaudible. Because these observations were videotaped (as opposed to live coding) team members could meet with the project director after interobserver evaluations to discuss any problems. Consistent difficulties amongst team members were discussed with both the individuals and the team during weekly meetings.

***Data Entry Team.*** Training for the *Data Entry Team* of undergraduate research assistants started immediately after the first session of the TCIT-PRE intervention (i.e., TCIT-PRE Orientation Session). Training involved teaching team members how to code, score, and enter data into the appropriate database. The Data Entry Team was responsible for entering all of the assessment and observational data into a secure computer using the SPSS and Microsoft Access software programs. The Data Team met with the primary investigator once per week for training, and continued to meet on a weekly basis during data entry/review to address questions or concerns. The Data Entry Team was uninformed about the treatment design and procedures, and met separately from the Observation and Coding Teams to reduce the possibility of bias.

## Chapter 3: Results

### Visual Inspection

As stated above, the current study utilized two concurrent multiple-baseline designs across classrooms, and outcomes were examined graphically using visual inspection. According to Kazdin (2003), the evaluation of data utilizing visual inspection has the same goal as other statistical techniques (i.e., identify if the effects are consistent, reliable, and unlikely to have resulted from chance). Visual inspection depends on many characteristics of data, particularly the magnitude of changes across phases and the rate of these changes (Kazdin, 2003). As noted by Kazdin (2003), the two characteristics related to the *magnitude* are changes in the *mean* (i.e., the mean rate of the behavior shows a change from phase to phase in the expected direction), and *level* (i.e., a change in behavior from the last part of the baseline phase and the first part of the intervention phase). The two characteristics related to *rate* are changes in *slope* (i.e., direction of the slope changes from baseline to intervention phase), and *latency* of the change (i.e., speed with which the change occurs when the conditions are changed from baseline to intervention). Overall, visual inspection has generated a body of research and outcomes that are reliable and replicable (Kazdin, 2003).

### Head Start Teachers Acquisition of TCIT-PRE Skills within the Training Room

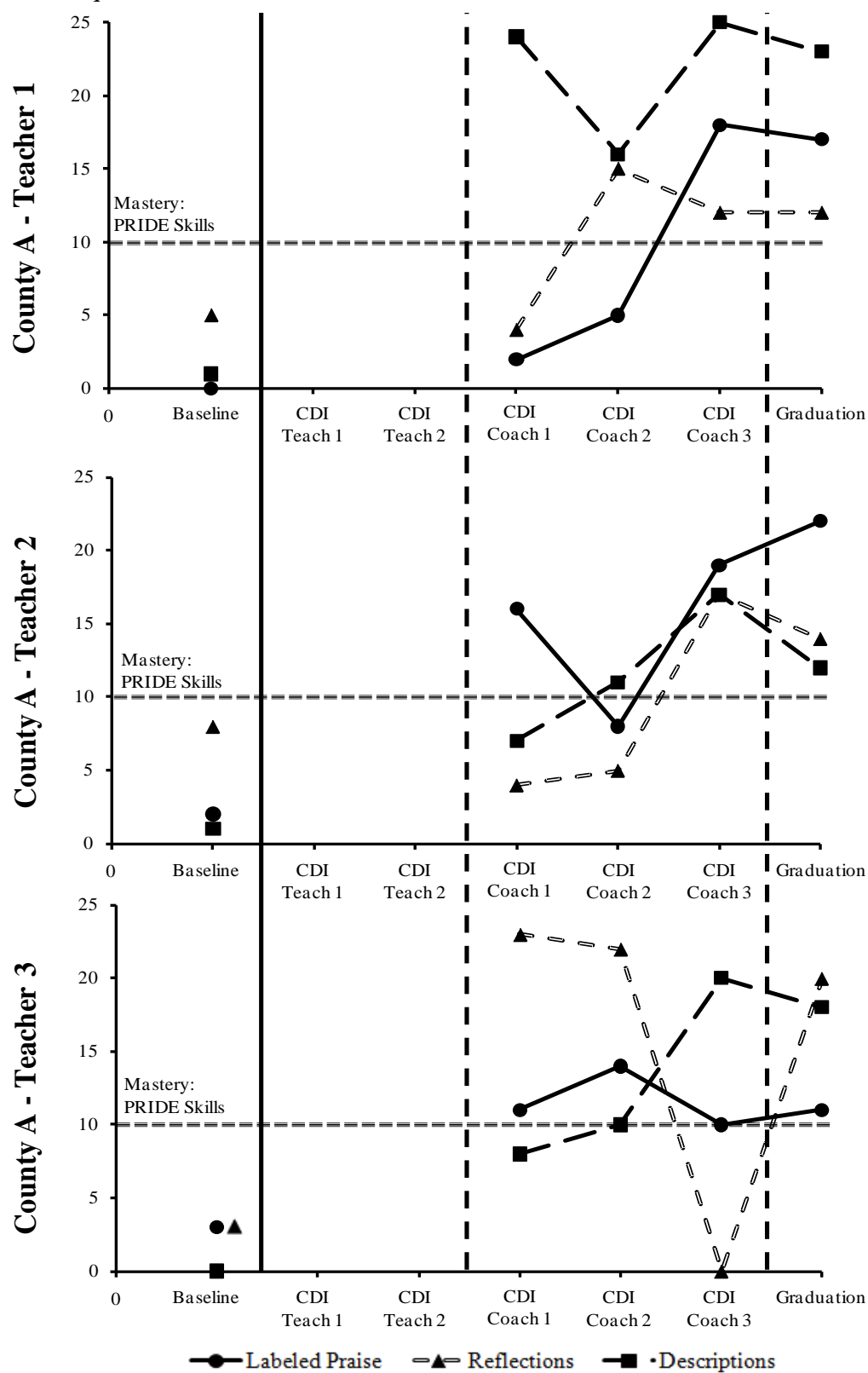
**Child-directed (PRIDE) skills with an individual child.** As stated above, prior to the TCIT-PRE intervention, teachers were observed interacting with an individual child, pair of children, and a small group of three children in a training room (i.e., room outside of the classroom environment). The following section describes each teacher's

ability to acquire CDI skills in the first phase of the TCIT-PRE program. The section includes a series of figures focused on CDI skill acquisition with individual, pairs, and groups of children during the first phase (and not the second phase) of the TCIT-PRE program. The figures also depict the maintenance of CDI skills during the graduation session.

*Skill acquisition for teachers in County A.* During these baseline observations, all three teachers in County A exhibited limited use of PRIDE skills with an individual child (Figure 1). However, each teacher demonstrated immediate improvements following the initiation of the TCIT-PRE program, and all three teachers' utilization of PRIDE skills with an individual child continued to increase over time (for more detailed results, see Figures B-1 to B-3 in Appendix B). More importantly, and consistent with initial hypotheses, teachers were able to demonstrate mastery criteria of PRIDE skills with an individual child. In fact, Teacher 3 met mastery criteria in CDI Coaching Session #2 (i.e., 14 Labeled Praises, 22 Reflections, 10 Behavioral Descriptions, and 2 "Avoid" skills), while Teachers 1 and 2 met mastery criteria in CDI Coaching Session #3 (18 & 19 Labeled Praises, 12 & 17 Reflections, 25 & 17 Behavioral Descriptions, and 1 & 0 "Avoid" skills, respectively).

It is important to note that Teacher #3 continued to meet mastery criteria in CDI Coaching Session #3 even though the teacher did not verbalize any Reflections. According to PCIT guidelines, if a child does not provide an adequate number of verbalizations to reflect (i.e., verbalizes less than 10 statements), mastery criteria is based upon reflecting at least 75% of the statements the child did express. During CDI

Figure 1: Acquisition of PRIDE skills with an Individual Child for Teachers in County A



Coaching Session #3, the child played quietly with toys the entire time. Thus, the teacher would technically meet criteria for mastery, but overall confidence in the teacher's ability to utilize TCIT-PRE skills was strengthened by meeting official mastery guidelines in the previous session.

As noted above, mastery criteria for the CDI phase requires teachers to exhibit PRIDE skills, while refraining from using the "Avoid" skills (i.e., no more than three total questions, commands, or criticisms) during a single five-minute observation period. During the baseline observations, all three teachers in County A demonstrated significant use of "Avoid" skills with an individual child (Figure 2). However, each teacher demonstrated a significant reduction of "Avoid" skills during the second observation (CDI Coaching Session #1) with the mean rate decreasing from 25.0 to 2.0.

The TCIT-PRE skills were maintained over time and all three teachers in County A met mastery with an individual child during behavioral observations at the graduation session. Overall, all CDI skills significantly improved for teachers in County A with individual children from baseline to graduation. On average, Labeled Praises improved from 1.67 ( $SD = 1.53$ ) at baseline to 16.67 ( $SD = 5.51$ ) at graduation, Reflections increased from 5.33 ( $SD = 2.52$ ) to 15.33 ( $SD = 4.16$ ), Behavior Descriptions increased from 0.67 ( $SD = 0.58$ ) to 17.67 ( $SD = 5.51$ ), and "Avoid" skills decreased from 25.00 ( $SD = 5.57$ ) to 0.67 ( $SD = 0.58$ ).

***Skill acquisition for teachers in County B.*** Similar to teachers in County A, all three teachers in County B exhibited limited use of PRIDE skills with an individual child during baseline observations (Figure 3). However, much like County A, each teacher's

Figure 2: “Avoid” Skills with an Individual Child for Teachers in County A

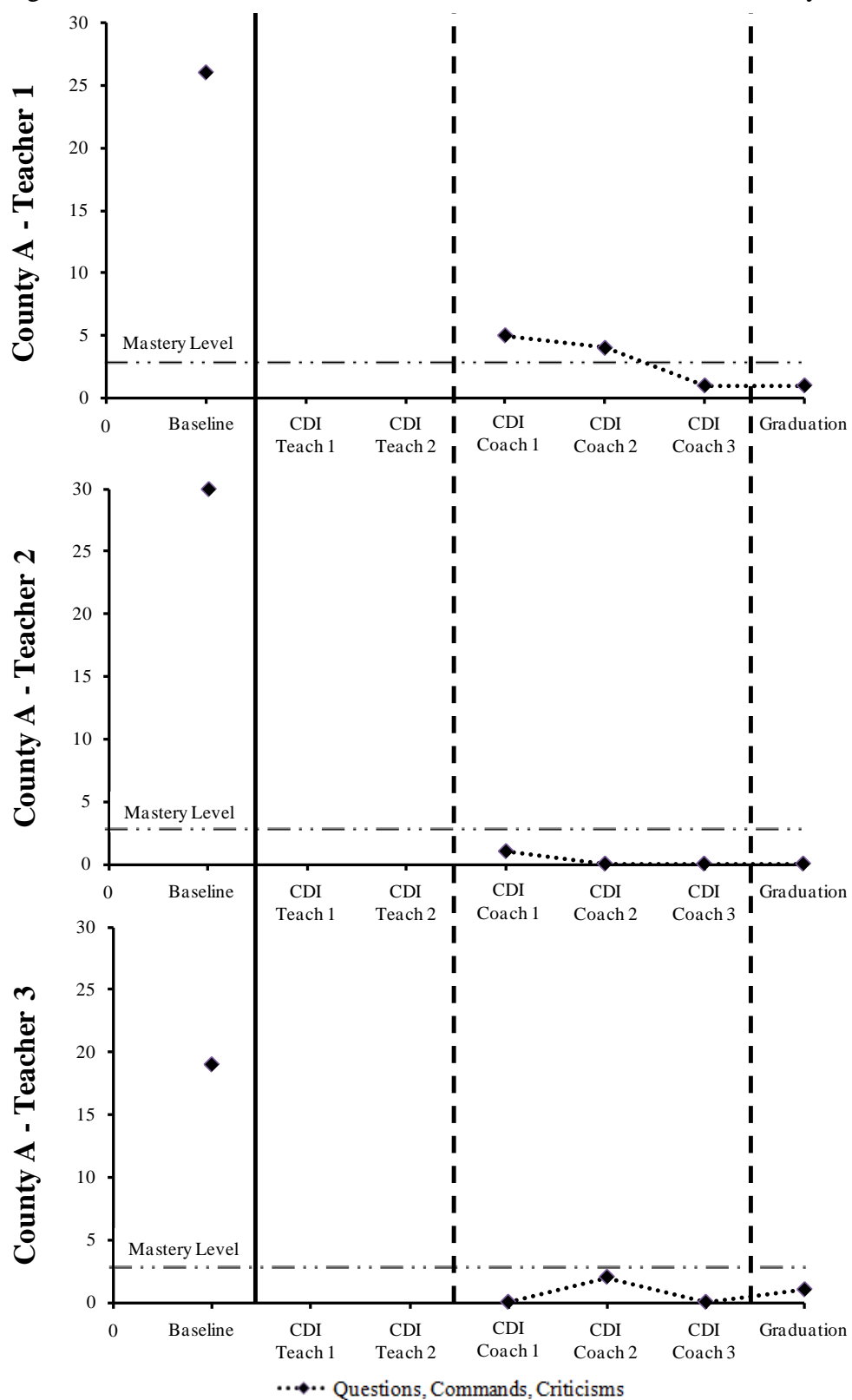
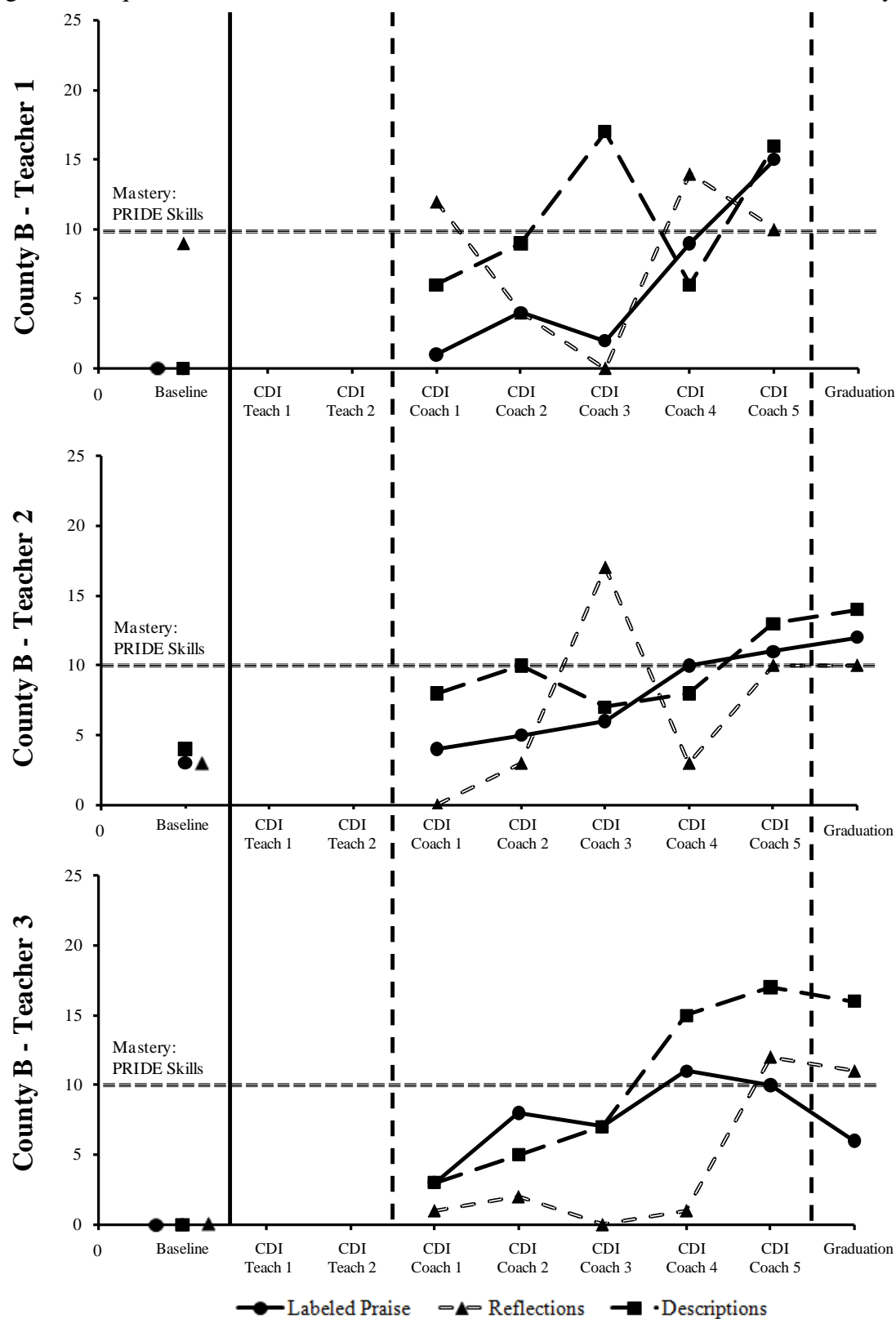




Figure 3: Acquisition of PRIDE Skills with an Individual Child for Teachers in County B



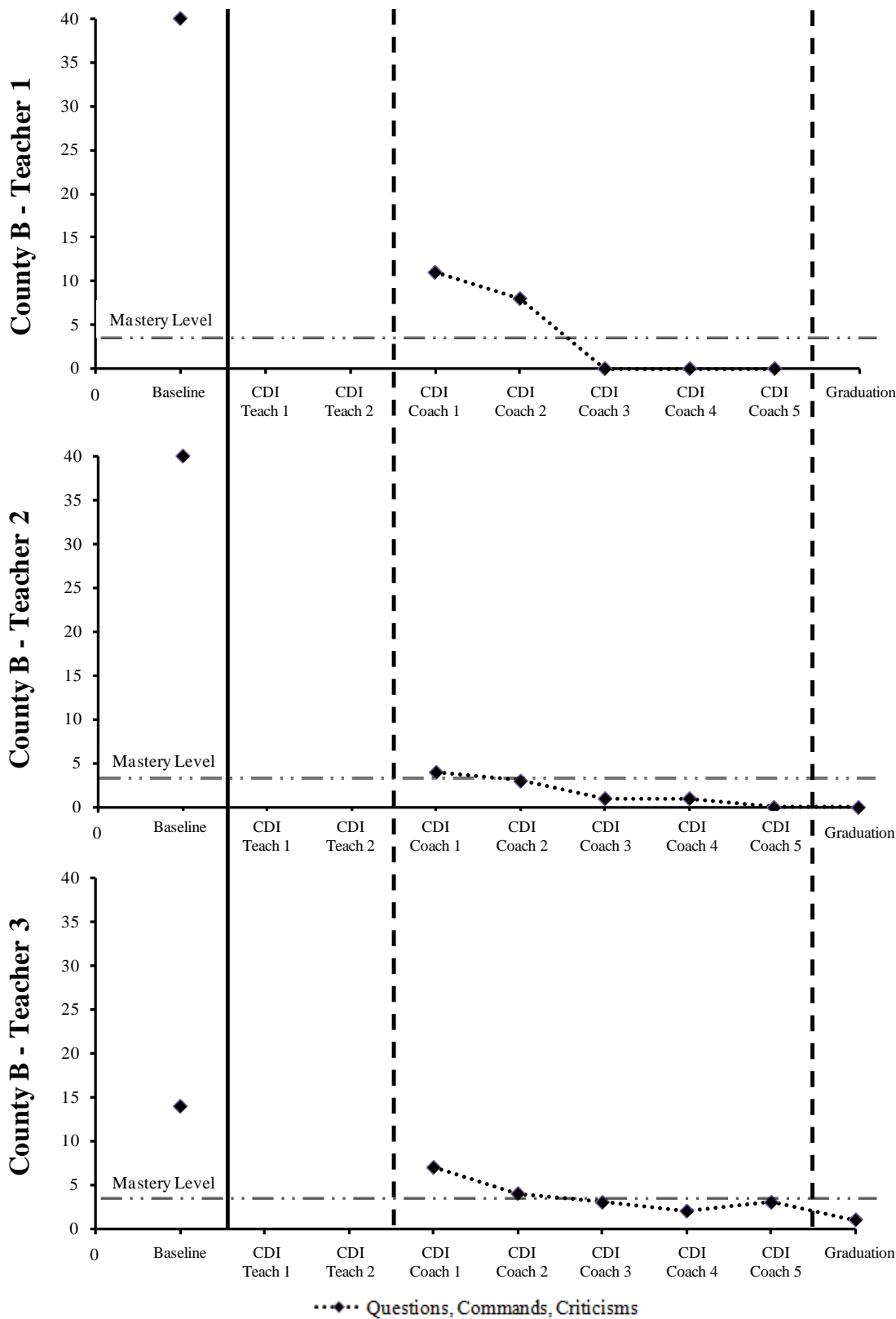
utilization of PRIDE skills with an individual child improved following the initiation of the TCIT-PRE intervention, and continued to increase over time (for more detailed results, see Figures B-4 to B-6 in Appendix B).

Similar to County A, and consistent with initial hypotheses, teachers in County B were also able to demonstrate mastery criteria of PRIDE skills with an individual child. However, all three teachers in County B required additional coaching sessions to meet CDI mastery. During Coaching Session #5, Teacher #1 (15 Labeled Praises, 10 Reflections, 16 Behavioral Descriptions, and 0 “Avoid” skills); Teacher #2 (11 Labeled Praises, 10 Reflections, 13 Behavioral Descriptions, and 0 “Avoid” skills); and Teacher #3 (10 Labeled Praises, 12 Reflections, 17 Behavioral Descriptions, and 3 “Avoid” skills) met CDI mastery.

Again, CDI mastery criteria requires each teacher to exhibit PRIDE skills while refraining from using the “Avoid” skills during a single five-minute observation period. During the baseline observations, all three teachers in County B demonstrated significant use of “Avoid” skills with an individual child (Figure 4). However, all teachers demonstrated a significant reduction of “Avoid” skills during the second observation (CDI Coaching Session #1) with the average rate decreasing from 31.33 to 7.33.

Unfortunately, after completing the CDI phase of the intervention, Teacher #1 in County B was placed on “indefinite leave” by the administration and was unable to complete the TCIT-PRE program. Therefore, we were unable to evaluate the first teacher’s ability to maintain the use of the TCIT-PRE skills over time. Of the two remaining teachers in County B, Teacher #2 continued to display mastery criteria with an individual child at the graduation

Figure 4: “Avoid” Skills with an Individual Child for Teachers in County B



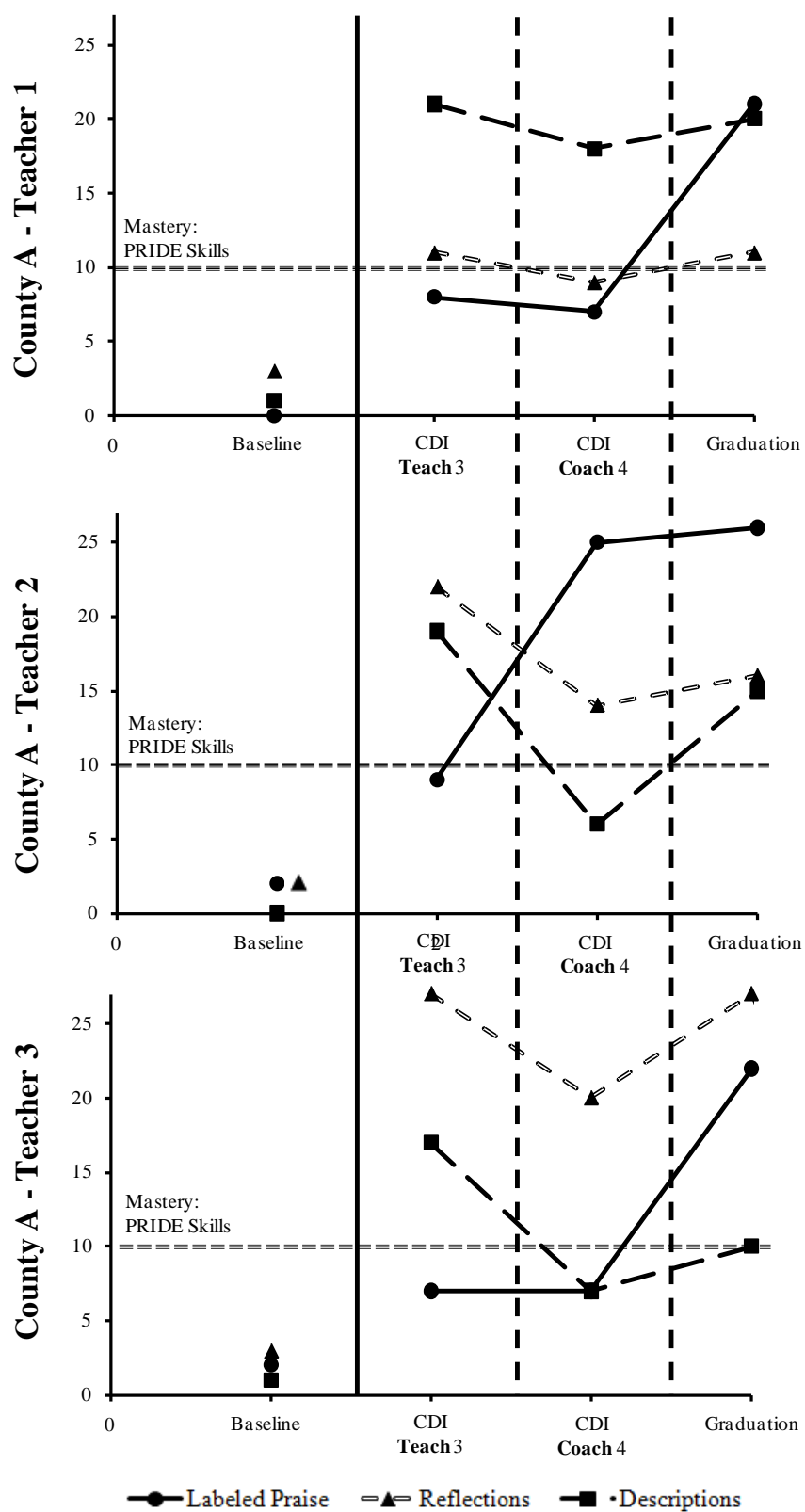
session. However, even though Teacher #3 had met mastery previously, they did not express a sufficient number of Labeled Praises to meet mastery criteria at graduation.

Overall, Teacher #2 and Teacher #3 in County B significantly improved their utilization of TCIT-PRE skills with individual children from baseline to graduation. On average, Labeled Praises for both teachers improved from 1.50 ( $SD = 2.12$ ) at baseline to 9.00 ( $SD = 4.24$ ) at graduation, Reflections increased from 1.50 ( $SD = 2.12$ ) to 10.50 ( $SD = 0.71$ ), Behavior Descriptions increased from 2.0 ( $SD = 2.83$ ) to 15.00 ( $SD = 1.41$ ), and “Avoid” skills decreased from 27.00 ( $SD = 18.39$ ) to 0.50 ( $SD = 0.71$ ) at graduation.

#### **Child-directed (PRIDE) skills with pairs of children.**

*Skill acquisition for teachers in County A.* As previously mentioned, all teachers were also observed with pairs of children during baseline observations. All three teachers in County A exhibited limited initial use of PRIDE skills with pairs of children (Figure 5). Notably, after baseline observations teachers only interact with an individual child until they are able to meet mastery criteria. That is, the first coaching sessions are limited to an individual child, and not focused on the demonstration of skills with multiple children. Therefore, teachers were re-assessed with pairs of children *after* teachers achieved CDI mastery with an individual child, but *prior to* the CDI Teaching Session for Multiple Children. The purpose of the second evaluation was to evaluate if behaviors utilized with an individual child generalized to pairs of children. During the second observation, the utilization of TCIT-PRE skills significantly increased: the average number of Labeled Praises improved from 1.33 to 8.00, Reflections increased from 2.67 to 20.00, and Behavioral Descriptions improved from 0.67 to 19.00. Further, Head Start

Figure 5: Acquisition of PRIDE Skills with Pairs of Children for Teachers in County A



teachers' utilization of each PRIDE skill with pairs of children continued to increase over time (see Figures B-7 to B-9 in Appendix B).

Consistent with baseline observations with individual children, all teachers exhibited significant use of "Avoid" skills with pairs of children at baseline (Figure 6). However, each teacher demonstrated significant decreases in questions, commands, and criticisms during the second observations (prior to the CDI Teaching Session for Multiple Children) with the average rate decreasing from 26.33 to 1.0. Using the standard CDI mastery criteria (i.e., at least 10 labeled praises, 10 behavioral descriptions, 10 reflective statements, and no more than a total of three questions, commands, or criticisms during a single, five-minute observation period), all three teachers in County A demonstrated mastery with pairs of children during behavioral observations at the graduation session.

Overall, all TCIT-PRE skills significantly improved for teachers in County A with pairs of children from baseline to graduation. On average, Labeled Praises improved from 1.33 ( $SD = 1.16$ ) at baseline to 23.00 ( $SD = 2.65$ ) at graduation, Reflections increased from 2.67 ( $SD = 0.58$ ) to 18.00 ( $SD = 8.19$ ), Behavior Descriptions increased from 0.67 ( $SD = 0.58$ ) to 15.00 ( $SD = 5.00$ ), and "Avoid" skills decreased from 26.33 ( $SD = 4.73$ ) to 0.67 ( $SD = 0.58$ ) at graduation.

***Skill acquisition for teachers in County B.*** Similar to teachers in County A, all three teachers in County B exhibited limited use of PRIDE skills with pairs of children during baseline observations (Figure 7). Again, all teachers were re-evaluated with pairs of children happened *after* teachers achieved CDI mastery with an individual child, but *prior to* the CDI Teaching Session for Multiple Children to evaluate if behaviors utilized

Figure 6: “Avoid” Skills with Pairs of Children for Teachers in County A

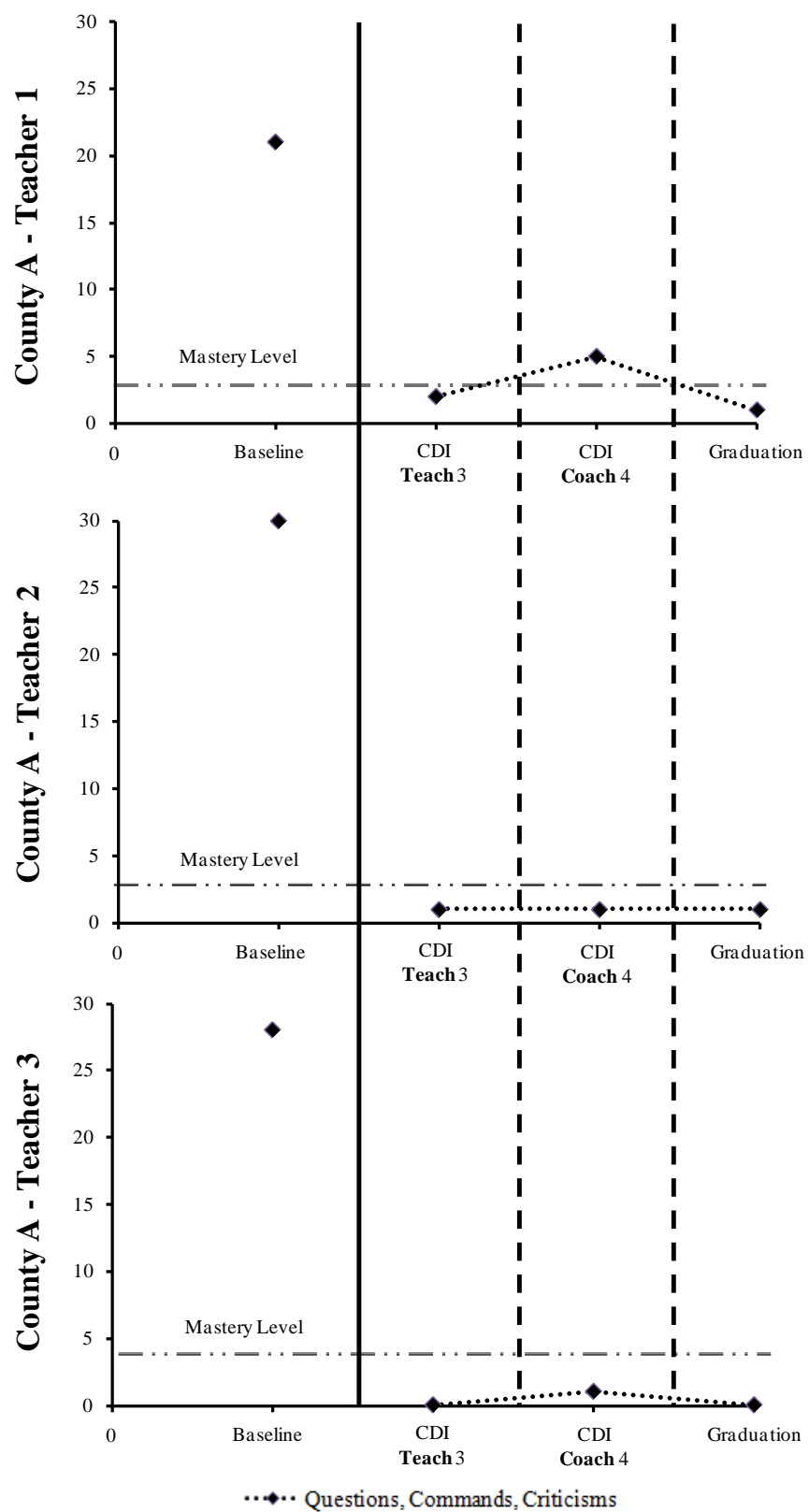
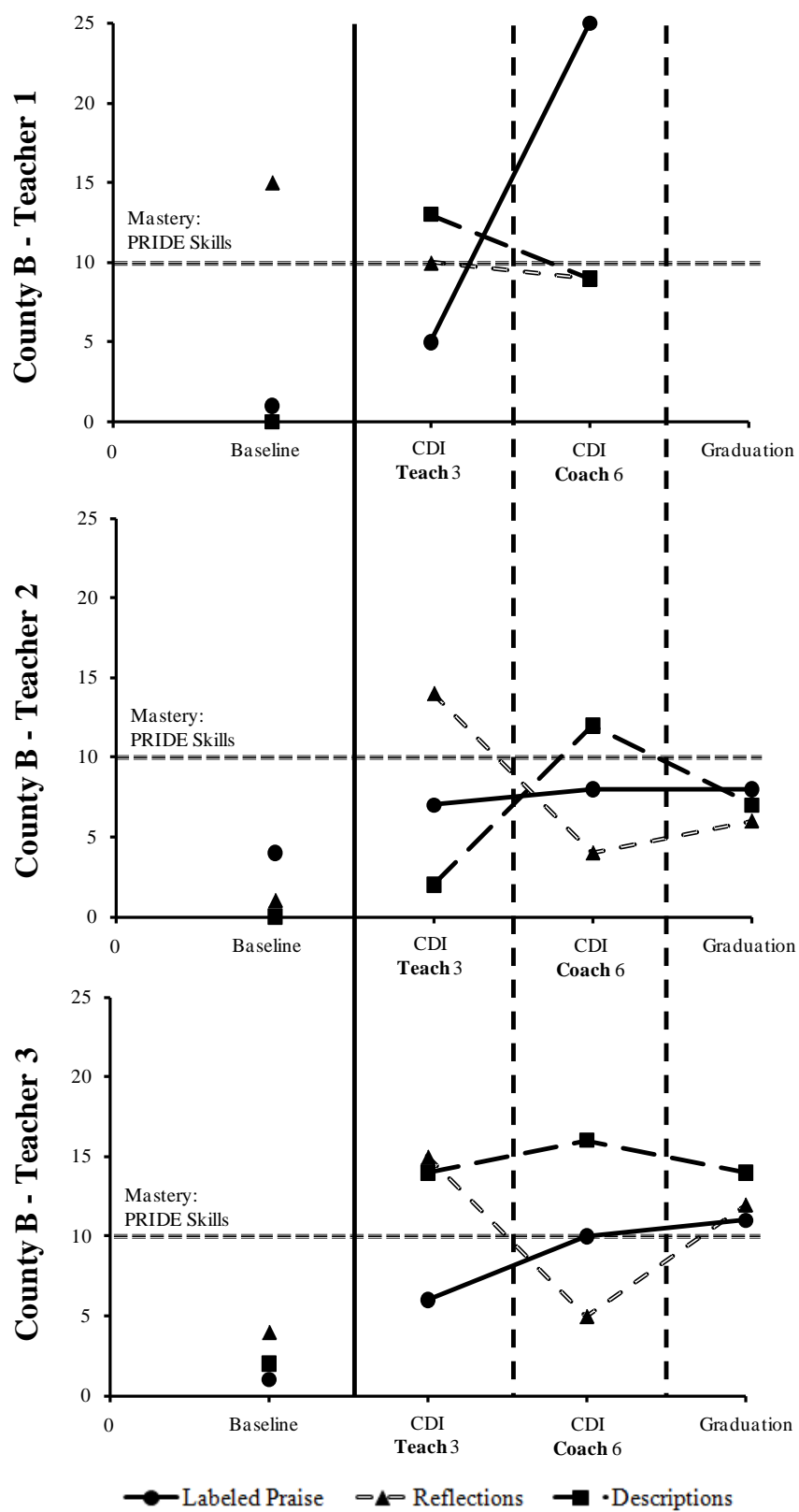


Figure 7: Acquisition of PRIDE skills with Pairs of Children for Teachers in County B



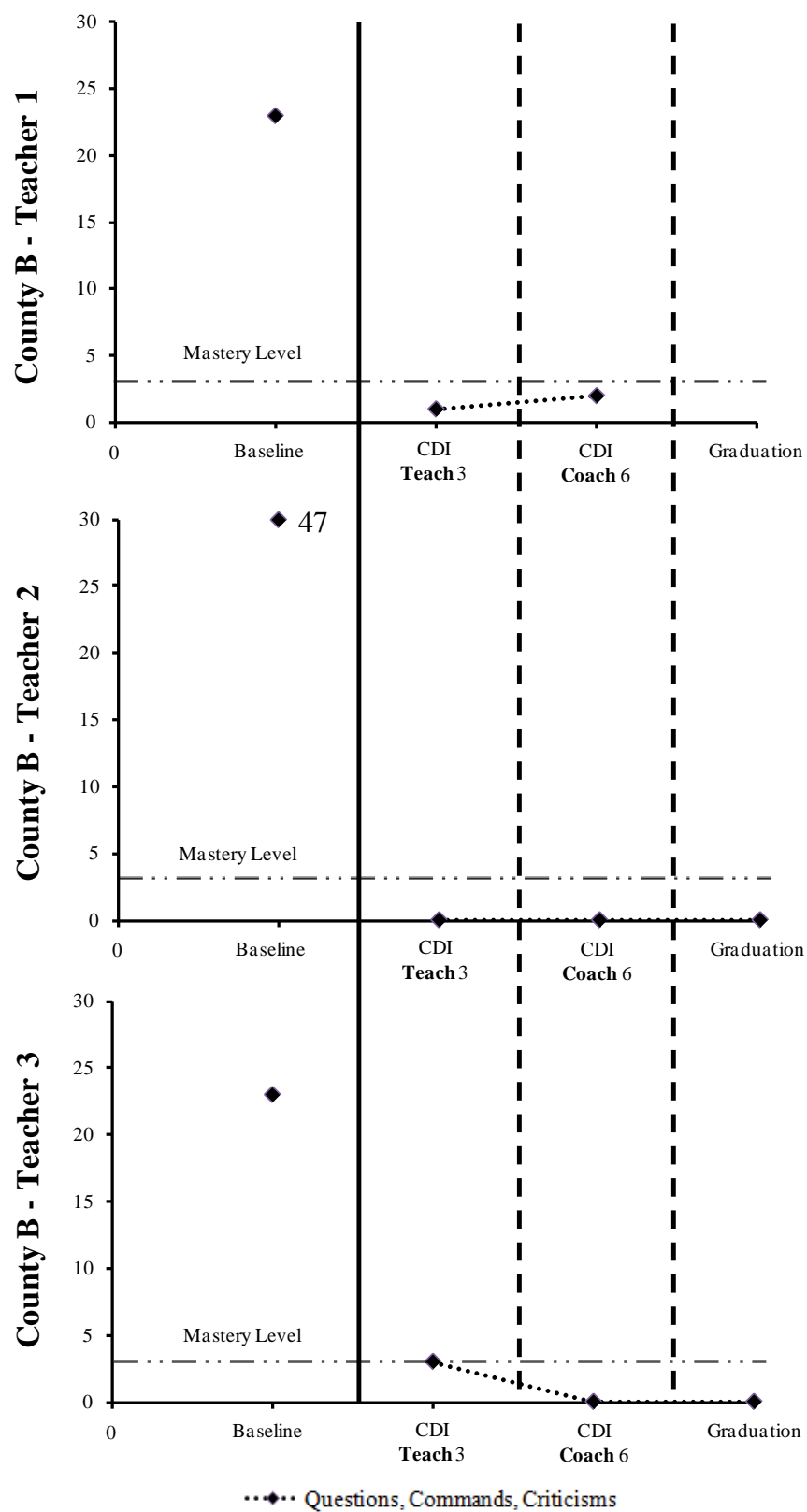


with an individual child generalized to pairs of children. During the second observation, the utilization of TCIT-PRE skills increased from baseline: the average number of Labeled Praises improved from 2.00 to 6.00, Reflections increased from 6.67 to 13.00, and Behavioral Descriptions improved from 0.67 to 9.67. All teachers in County B demonstrated increased utilization of PRIDE skills with pairs of children over time (with the exception of Reflections for Teacher #1; see Figures B-10 to B-12 in Appendix B).

Similar to observations with individual children, all teachers in County B exhibited significant use of “Avoid” skills with pairs of children during baseline observations (Figure 8). However, each teacher demonstrated significant decreases in questions, commands, and criticisms during the second observations (prior to the CDI Teaching Session for Multiple Children), and the average rate decreased from 31.00 to 1.33.

As stated above, Teacher #1 in County B was placed on “indefinite leave” by the administration and was unable to complete the TCIT-PRE program. Therefore, we were unable to evaluate the first teacher’s ability to maintain the use of TCIT-PRE skills over time. Opposite of the results for individual children, Teacher #3 in County B was able to maintain mastery criteria with pairs of children during the graduation session but Teacher #2 did not. Overall, Teacher #2 and Teacher #3 in County B exhibited significant improvements in their utilization of TCIT-PRE skills with pairs of children from baseline to graduation. On average, Labeled Praises for both teachers improved from 2.50 ( $SD = 2.12$ ) at baseline to 9.50 ( $SD = 2.12$ ), Reflections increased from 2.50 ( $SD = 2.12$ ) to 9.00 ( $SD = 4.24$ ), Behavior Descriptions climbed from 1.0 ( $SD = 1.41$ ) to 10.50 ( $SD = 4.95$ ), and

Figure 8: “Avoid” Skills with Pairs of Children for Teachers in County B



“Avoid” skills dramatically decreased from 35.00 ( $SD = 16.97$ ) to 0.0 ( $SD = 0.0$ ) at graduation.

**Child-directed (PRIDE) skills with groups of three children.**

*Skill acquisition for teachers in County A.* During the baseline observations, all teachers were also observed interacting with a small group of three children during a five-minute period. Similar to results with individual and pairs of children, all three teachers in County A exhibited limited use of PRIDE skills with groups of three children at baseline (Figure 9). As stated above, each teacher’s utilization of the TCIT-PRE skills was re-assessed with groups of three children happened *after* teachers achieved CDI mastery with an individual child, but *prior to* the CDI Teaching Session for Multiple Children. The purpose of the second evaluation was to evaluate if behaviors utilized with an individual child generalized to small groups of children. During the second observation, the utilization of TCIT-PRE skills for teachers in County A significantly increased: the average number of Labeled Praises improved from 1.00 to 13.33, Reflections increased from 6.67 to 16.67, and Behavioral Descriptions improved from 2.00 to 18.00.

Importantly, Head Start teachers’ utilization of PRIDE skills with groups of three children continued to increase over time (with the slight exception of Reflections for Teacher #2, see Figures B-13 to B-15 in Appendix B). Similar to baseline observations with individual and pairs of children, all three teachers in County A exhibited significant use of “Avoid” skills with pairs of children at baseline (Figure 10). However, each teacher demonstrated significant decreases in “Avoid” skills during the second

Figure 9: Acquisition of PRIDE Skills with Three Children for Teachers in County A

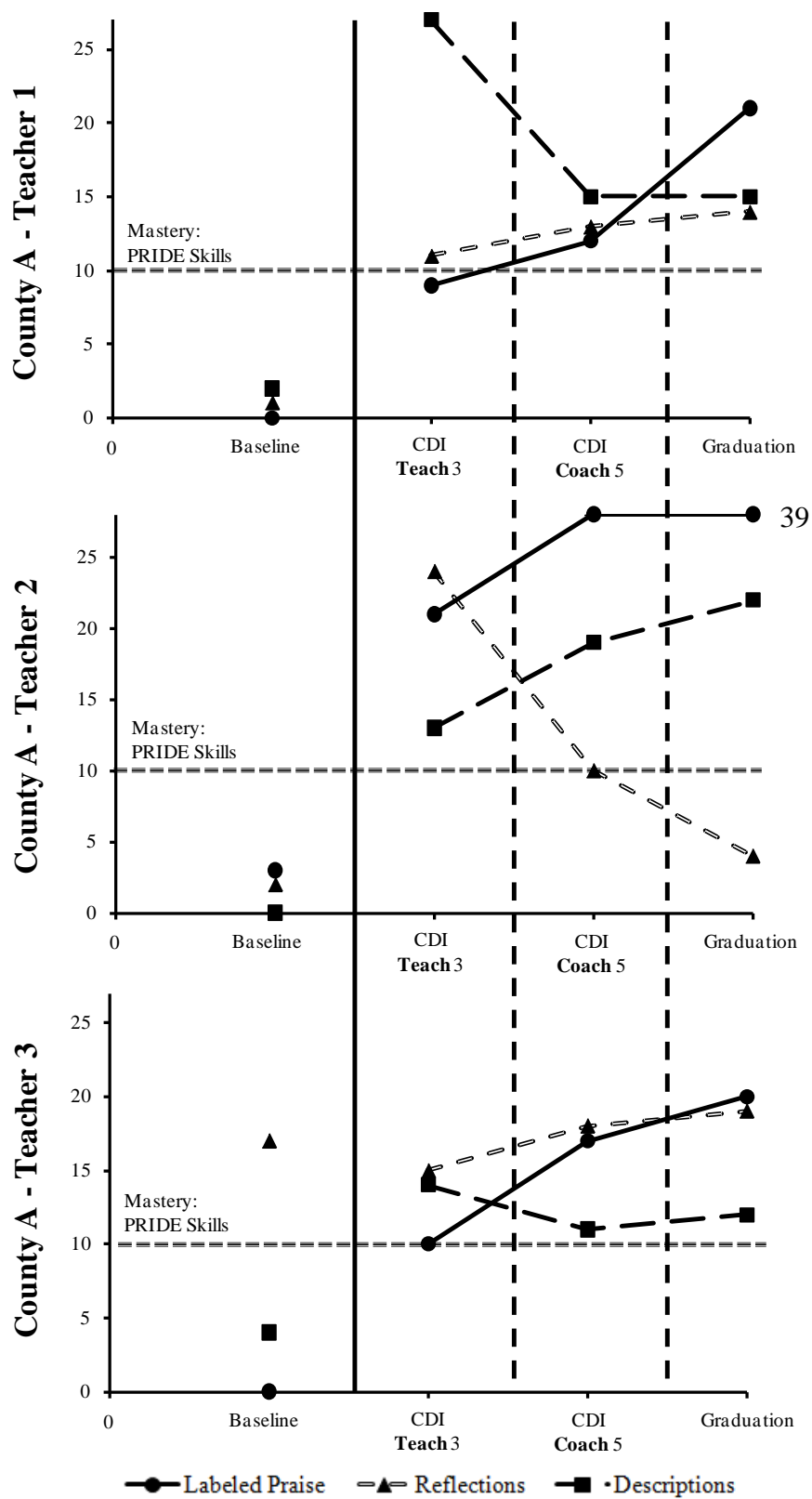
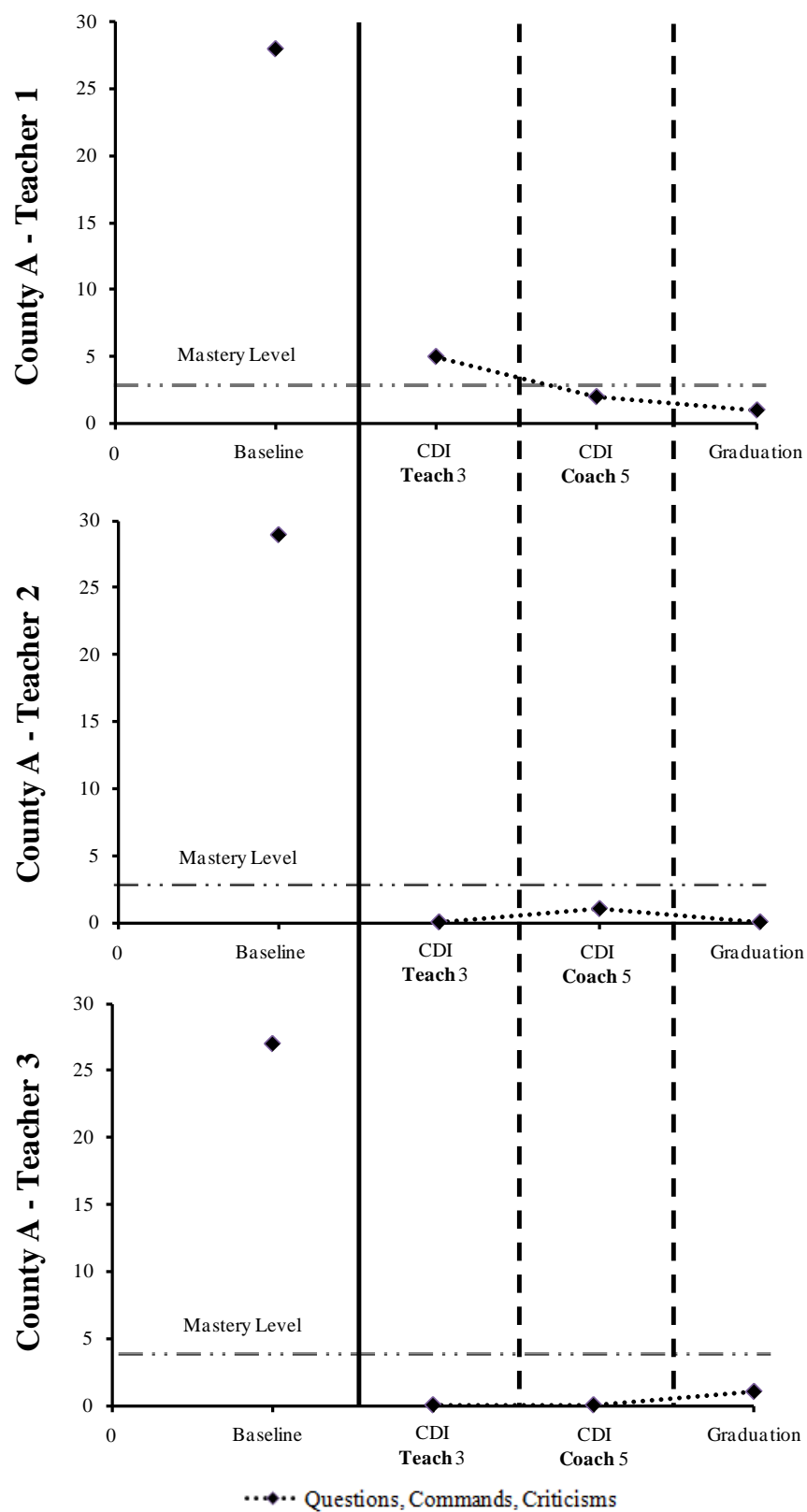


Figure 10: “Avoid” Skills with Groups of Three Children for Teachers in County A



observations (prior to the CDI Teaching Session for Multiple Children); the overall average for teachers in County A decreased from 28.00 to 1.67.

Consistent with initial hypotheses, teachers in County A were able to demonstrate mastery criteria of PRIDE skills with small groups of children several times. In fact, Teachers 2 and 3 met mastery criteria during the re-evaluation that occurred prior to the CDI Teaching Session with Multiple Children. Teacher 1 also met mastery criteria several times, including CDI Coaching Session #5. Two of the three teachers in County A (Teacher #1 and Teacher #3) demonstrated mastery criteria with small groups of children during behavioral observations at the graduation session. Again, Teacher #2 met mastery criteria with three children several times during the TCIT-PRE program. Teacher #2's inability to meet criteria during graduation was due, at least in part, to delivering a substantial number of Labeled Praises and Behavior Descriptions during the Graduation evaluation (total of 61 praises and descriptions).

Overall, all TCIT-PRE skills significantly improved for teachers in County A with groups of three children from baseline to graduation. On average, Labeled Praises improved from 1.00 ( $SD = 1.73$ ) at baseline to 26.67 ( $SD = 10.69$ ) at graduation, Reflections increased from 6.67 ( $SD = 8.96$ ) to 12.33 ( $SD = 7.64$ ), Behavior Descriptions increased from 2.00 ( $SD = 2.00$ ) to 16.33 ( $SD = 5.13$ ), and "Avoid" skills decreased from 28.00 ( $SD = 1.00$ ) to 0.67 ( $SD = 0.58$ ).

***Skill acquisition for teachers in County B.*** Consistent with results with individual and pairs of children, all three teachers in County B exhibited limited use of PRIDE skills with groups of three children at baseline (Figure 11). However, the

utilization of TCIT-PRE skills improved during the second observation which occurred *after* teachers achieved CDI mastery with an individual child, but *prior to* the CDI Teaching Session for Multiple Children. During the second observation, the average number of Labeled Praises improved from 3.00 to 11.00, Reflections increased from 5.00 to 7.67, and Behavioral Descriptions improved from 2.67 to 6.00, on average. Consistent with individual and pairs of children, Head Start teachers in County B increased the utilization of PRIDE skills with small groups over time (see Figures B-16 to B-18 in Appendix B).

During baseline observations, all teachers in County B exhibited significant use of “Avoid” skills with groups of three children (Figure 12). However, each teacher demonstrated significant decreases in questions, commands, and criticisms during the second observations (prior to the CDI Teaching Session for Multiple Children); the average rate decreased from 37.67 to 1.67.

Although not required in the present study, it was initially hypothesized that Head Start teachers would be able to demonstrate mastery level CDI skills with individual and small groups of children. Unfortunately, Teacher #1 was placed on “indefinite leave” and skills could not be assessed over time. Of the two remaining teachers, only Teacher #3 was able to meet mastery criteria with three children, which happened during CDI Coaching Session #7. Teacher #2 came close to meeting mastery on several occasions (e.g., only 1 Labeled Praise short in the CDI Teaching Session for Multiple Children; only 2 Labeled Praises short in the Graduation Session).

Figure 11: Acquisition of PRIDE skills with Three Children for Teachers in County B

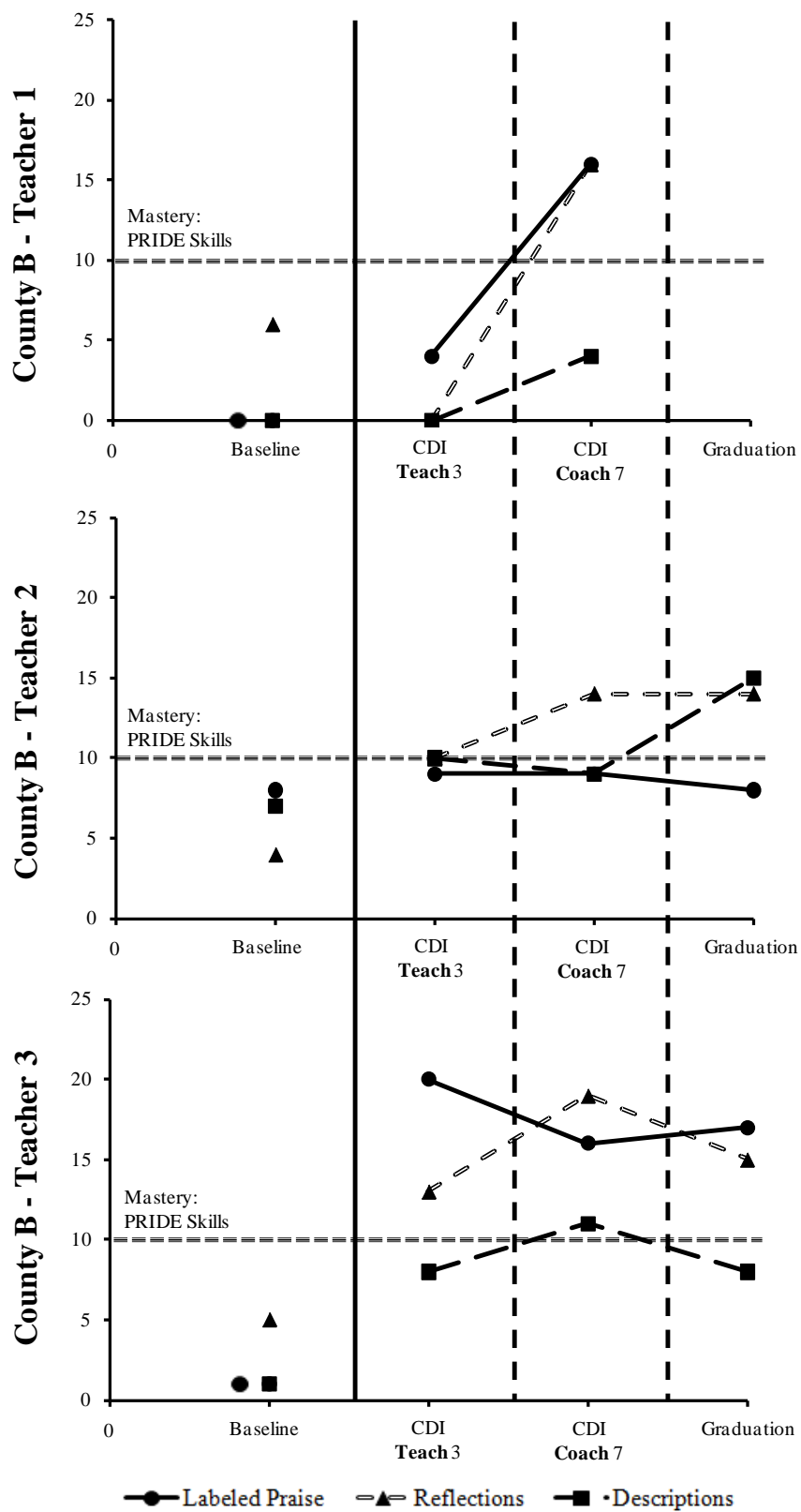
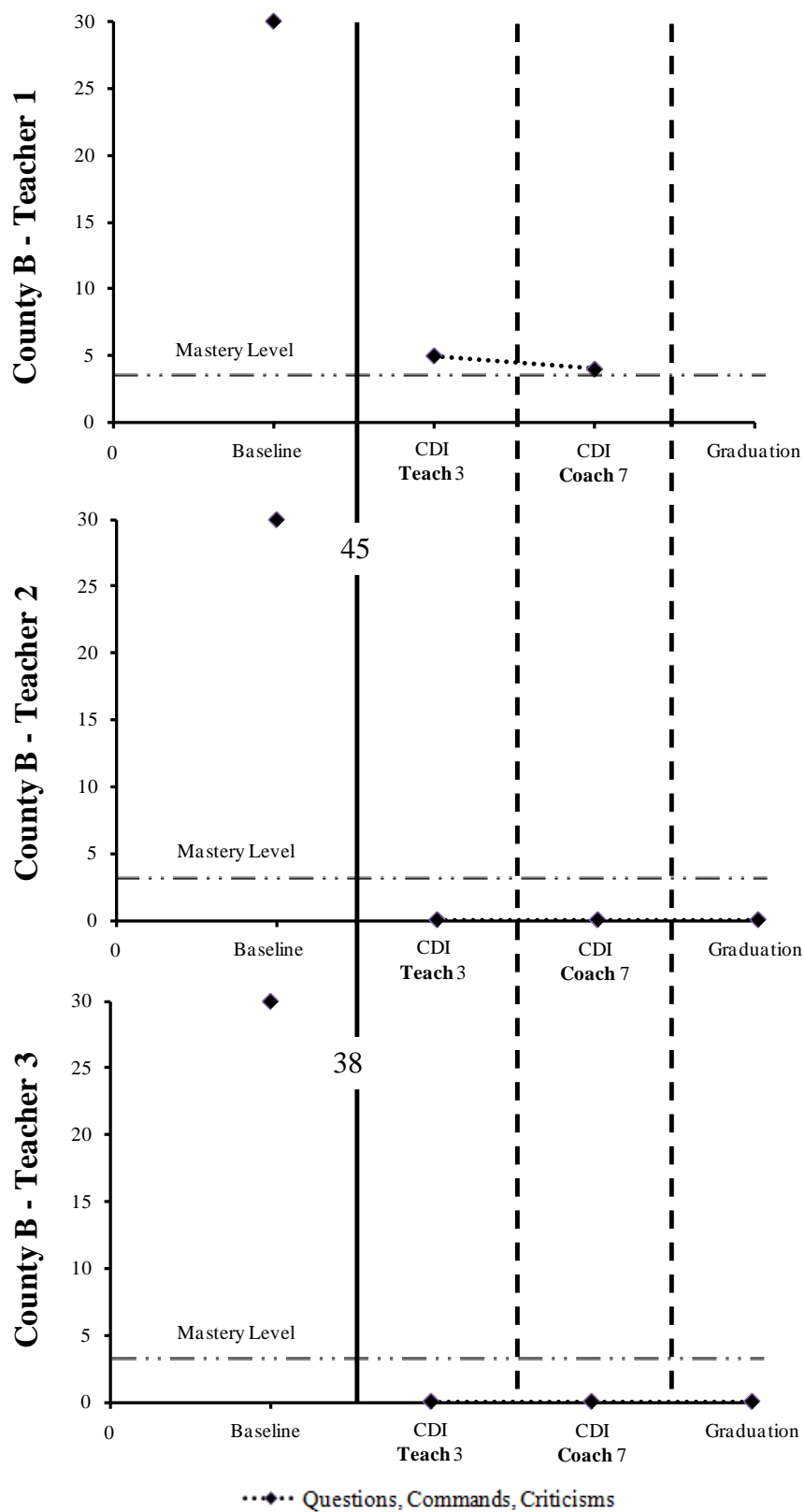




Figure 12: “Avoid” Skills with Groups of Three Children for Teachers in County B



Overall, Teacher #2 and Teacher #3 in County B significantly improved their utilization of TCIT-PRE skills with small groups of children from baseline to graduation. On average, Labeled Praises for both teachers improved from 4.50 ( $SD = 4.95$ ) at baseline to 12.50 ( $SD = 6.36$ ) at graduation, Reflections increased from 4.50 ( $SD = 0.71$ ) to 14.50 ( $SD = 0.71$ ), Behavior Descriptions increased from 4.00 ( $SD = 4.24$ ) to 11.50 ( $SD = 4.95$ ), and “Avoid” skills decreased from 41.50 ( $SD = 4.95$ ) to 0.0 ( $SD = 0.0$ ) at graduation.

**Teacher-directed skills with individual, pairs, and groups of three children.**

As stated above, before graduating from the TCIT-PRE program, teachers must meet criteria for TDI skill mastery. Similar to PCIT, TDI mastery is evaluated during the initial five-minute observational period and requires that: (a) teachers deliver at least four commands; (b) at least 75% of the teacher’s commands are effective (e.g., direct commands that are age-appropriate, positively stated, and provide an opportunity for the child to comply or not comply); and (c) teachers appropriately follow-through with their commands at least 75% of the time (i.e., labeled praise for compliance, Pause and Replay procedures for noncompliance). In addition, teachers must be able to successfully verbalize and demonstrate the proper Pause and Replay procedures before graduating from the TCIT-PRE program.

***Skill acquisition for teachers in County A.*** Prior to starting the TCIT-PRE program, all teachers completed a series of tasks that served as the baseline evaluation. During the baseline observations, teachers completed a five-minute Teacher-Directed Interaction task (with individual, pairs, groups of three children) where the teacher was

asked to choose the game or activity and encouraged to have the child(ren) participate according to their rules. Initially, teachers demonstrated a substantial number of indirect commands with limited follow-through for compliance. However, consistent with initial hypotheses, all three teachers in County A demonstrated improvements in their TDI skills over the course of the TCIT-PRE program and were able to meet TDI mastery criteria with both individual and groups of three children. Teacher #1 met mastery with both an individual child (i.e., 21 commands, 76.2% effective, 100% follow-through) and small group of children (i.e., 26 commands, 76.9% effective, 100% follow-through) during the Graduation Session (Table 4). However, Teacher #1 did not mastery criteria with a pair of children. Failure to meet mastery may have been due, at least in part, to delivering numerous commands (over 30 commands to a pair of children) during the graduation session. Teacher #2 and Teacher #3 both met TDI mastery criteria with individual, pairs, and small group of children during their Graduation sessions (Tables 5 and 6, respectively).

Initially, teachers in County A issued an average of 14.33 commands to individual children ( $SD = 7.66$ ; range = 8 to 23), 16.00 commands to pairs of children ( $SD = 12.28$ ; range = 7 to 30), and 16.67 commands to groups of three children ( $SD = 13.28$ ; range = 9 to 32). During the graduation session, teachers in County A issued an average of 11.67 commands to individual children ( $SD = 8.14$ ; range = 6 to 21), 17.00 commands to pairs of children ( $SD = 12.12$ ; range = 10 to 31), and 17.67 commands to groups of three children ( $SD = 7.62$ ; range = 11 to 26). Effective commands delivered by teachers in County A significantly improved from baseline to graduation with individual (33.9% to

Table 4  
*Teacher-Directed Interaction Results for Teacher #1 in County A*

Session	Total Number of Commands	Percentage of Positive, Direct Commands	Percentage of Correct Follow-Through with Compliance (Labeled Praise)	Percentage of Correct Follow-Through with Noncompliance (Warning / Pause & Replay)
<b>Individual Child</b>				
Baseline	23	39.1%	0%	N/A
Session 10	9	77.8%	100%	N/A
Session 13	--- Only Coaching ---	---	---	---
Session 14	15	66.7%	100%	No Noncompliant Behavior
Graduation	21	76.2%	100%	No Noncompliant Behavior
<b>Pairs of Children</b>				
Baseline	30	30.0%	6.3%	N/A
Graduation	31	54.8%	81.0%	No Noncompliant Behavior
<b>Groups of Three Children</b>				
Baseline	32	40.6%	0%	N/A
Graduation	26	76.9%	100%	100%

*Note.* Teachers in County A learned the Pause and Replay technique in Session 11. Therefore, follow-through with Pause and Replay prior to Session 11 is not applicable.

Table 5  
*Teacher-Directed Interaction Results for Teacher #2 in County A*

Session	Total Number of Commands	Percentage of Positive, Direct Commands	Percentage of Correct Follow-Through with Compliance (Labeled Praise)	Percentage of Correct Follow-Through with Noncompliance (Warning / Pause & Replay)
<b>Individual Child</b>				
Baseline	8	37.5%	66.7%	N/A
Session 10	11	81.8%	44.4%	N/A
Session 13	8	87.5%	100%	No Noncompliant Behavior
Session 14	8	100%	100%	No Noncompliant Behavior
Graduation	6	100%	100%	No Noncompliant Behavior
<b>Pairs of Children</b>				
Baseline	11	18.2%	75.0%	N/A
Graduation	10	80%	100%	No Noncompliant Behavior
<b>Groups of Three Children</b>				
Baseline	9	11.1%	50.%	N/A
Graduation	11	100%	100%	No Noncompliant Behavior
<i>Note.</i> Teachers in County A learned the Pause and Replay technique in Session 11. Therefore, follow-through with Pause and Replay prior to Session 11 is not applicable.				

Table 6  
*Teacher-Directed Interaction Results for Teacher #3 in County A*

Session	Total Number of Commands	Percentage of Positive, Direct Commands	Percentage of Correct Follow-Through with Compliance (Labeled Praise)	Percentage of Correct Follow-Through with Noncompliance (Warning / Pause & Replay)
<b>Individual Child</b>				
Baseline	12	25.0%	0%	N/A
Session 10	4	100%	100%	N/A
Session 13	8	87.5%	100%	No Noncompliant Behavior
Session 14	10	90.0%	100%	50.0%
Graduation	8	100%	100%	No Noncompliant Behavior
<b>Pairs of Children</b>				
Baseline	7	0%	0%	N/A
Graduation	10	90.0%	100%	No Noncompliant Behavior
<b>Groups of Three Children</b>				
Baseline	9	0%	0%	N/A
Graduation	16	100%	100%	No Noncompliant Behavior
<i>Note.</i> Teachers in County A learned the Pause and Replay technique in Session 11. Therefore, follow-through with Pause and Replay prior to Session 11 is not applicable.				

Table 7  
*Teacher-Directed Interaction Results for Teacher #2 in County B*

Session	Total Number of Commands	Percentage of Positive, Direct Commands	Percentage of Correct Follow-Through with Compliance (Labeled Praise)	Percentage of Correct Follow-Through with Noncompliance (Warning / Pause & Replay)
<b>Individual Child</b>				
Baseline	Inaudible (IA)	IA	IA	IA
Session 12	3	100%	0%	N/A
Session 15	5	60.0%	100%	No Noncompliant Behavior
Session 16	2	100%	50.0%	No Noncompliant Behavior
Graduation	10	90.0%	80.0%	100%
<b>Pairs of Children</b>				
Baseline	IA	IA	IA	IA
Graduation	10	90.0%	70.0%	No Noncompliant Behavior
<b>Groups of Three Children</b>				
Baseline	IA	IA	IA	IA
Graduation	10	80.0%	80.0%	100%
<i>Note.</i> Teachers in County B learned the Pause and Replay technique in Session 13. Therefore, follow-through with Pause and Replay prior to Session 13 is not applicable.				

Table 8  
*Teacher-Directed Interaction Results for Teacher #3 in County B*

Session	Total Number of Commands	Percentage of Positive, Direct Commands	Percentage of Correct Follow-Through with Compliance (Labeled Praise)	Percentage of Correct Follow-Through with Noncompliance (Warning / Pause & Replay)
<b>Individual Child</b>				
Baseline	4	50.0%	0%	N/A
Session 12	4	25.0%	0%	N/A
Session 15	2	100%	100%	No Noncompliant Behavior
Session 16	11	72.7%	90.0%	No Noncompliant Behavior
Graduation	15	86.7%	57.1%	No Noncompliant Behavior
<b>Pairs of Children</b>				
Baseline	5	60.0%	20.0%	N/A
Graduation	16	87.5%	88.9%	No Noncompliant Behavior
<b>Groups of Three Children</b>				
Baseline	13	46.2%	0%	N/A
Graduation	13	100%	83.0%	No Noncompliant Behavior
<i>Note.</i> Teachers in County B learned the Pause and Replay technique in Session 13. Therefore, follow-through with Pause and Replay prior to Session 13 is not applicable.				



92.1%), pairs (16.1% to 74.9%), and small group of three children (17.2% to 92.3%).

Appropriate follow-through with compliance also significantly improved from baseline to graduation with individual (22.2% to 100%), pairs (27.1% to 93.7%), and groups of three children (16.7% to 100%).

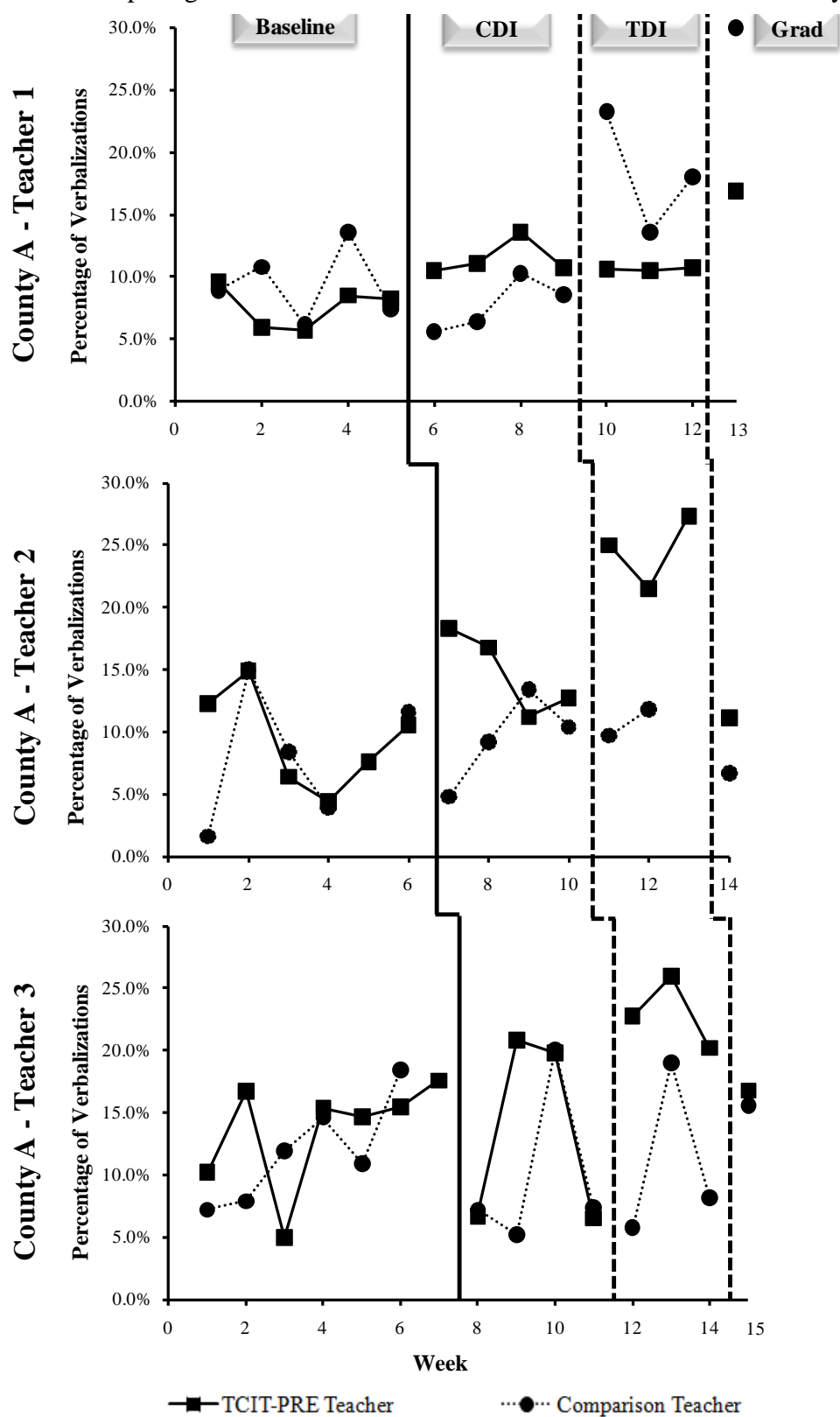
***Skill acquisition for teachers in County B.*** Two teachers in County B also completed five-minute TDI tasks with individual, pairs, groups of three children during the baseline assessment. As previously stated, Teacher #1 in County B was placed on indefinite leave prior to the start of the TDI phase. Unfortunately, Teacher #2 had an inaudible tape during the baseline observations. Consistent with initial hypotheses, Teacher #2 was able to meet TDI mastery criteria with both individual and groups of three children, but slightly missed mastery criteria with pairs of children (Table 7). Contrary to initial hypotheses, Teacher #3 in County B was unable to demonstrate TDI mastery criteria with individual, pairs, or groups of three children during the program (Table 8). These results may be due, at least in part, to Teacher #3 missing an entire coaching session during the TDI phase of the program.

### **Generalization of TCIT-PRE Skills to the Classroom**

#### **Child-directed (PRIDE) skills.**

***Generalization of CDI skills for teachers in County A.*** Overall, teachers in County A exhibited increased utilization of PRIDE skills in their classroom across time (Figure 13). More specifically, the average utilization of PRIDE skills for teachers in County A during the baseline condition was 10.2% ( $SD = 3.1\%$ ), which improved over the CDI phase ( $M = 13.2\%$ ;  $SD = 1.7\%$ ) and TDI phase ( $M = 19.4\%$ ;  $SD = 7.7\%$ ). The

Figure 13: Comparing the Use of PRIDE Skills within the Classroom in County A



average utilization during the graduation week (only two observations per teacher) continued to show improvements over baseline ( $M = 14.9\%$ ;  $SD = 3.3\%$ ).

It is important to note that each teacher's utilization of PRIDE skills in the classroom was not only compared to distinct TCIT-PRE phases, but also compared to an assistant teacher who did not participate in the TCIT-PRE program. During baseline, Teacher #1 in County A utilized PRIDE skills less frequently than the comparison teacher (7.6% and 9.4%, respectively). However, Teacher #1's utilization of PRIDE skills quickly improved and the teacher utilized PRIDE skills more often than the assistant teacher during the CDI phase (11.5% and 7.7%, respectively). During the TDI phase, Teacher #1 demonstrated a slight decrease in the average utilization of PRIDE skills (10.6%), that later improved during the Graduation week (16.9%). However, the assistant teacher in Classroom #1 of County A demonstrated substantial improvements in the utilization of PRIDE skills during the TDI phase (average of 18.3%) and graduation week (33.3%). Overall, Teacher #1 improved from 7.6% at baseline to 16.9% during the graduation week, while the comparison teacher improved from 9.4% during baseline to 33.3% for the graduation week.

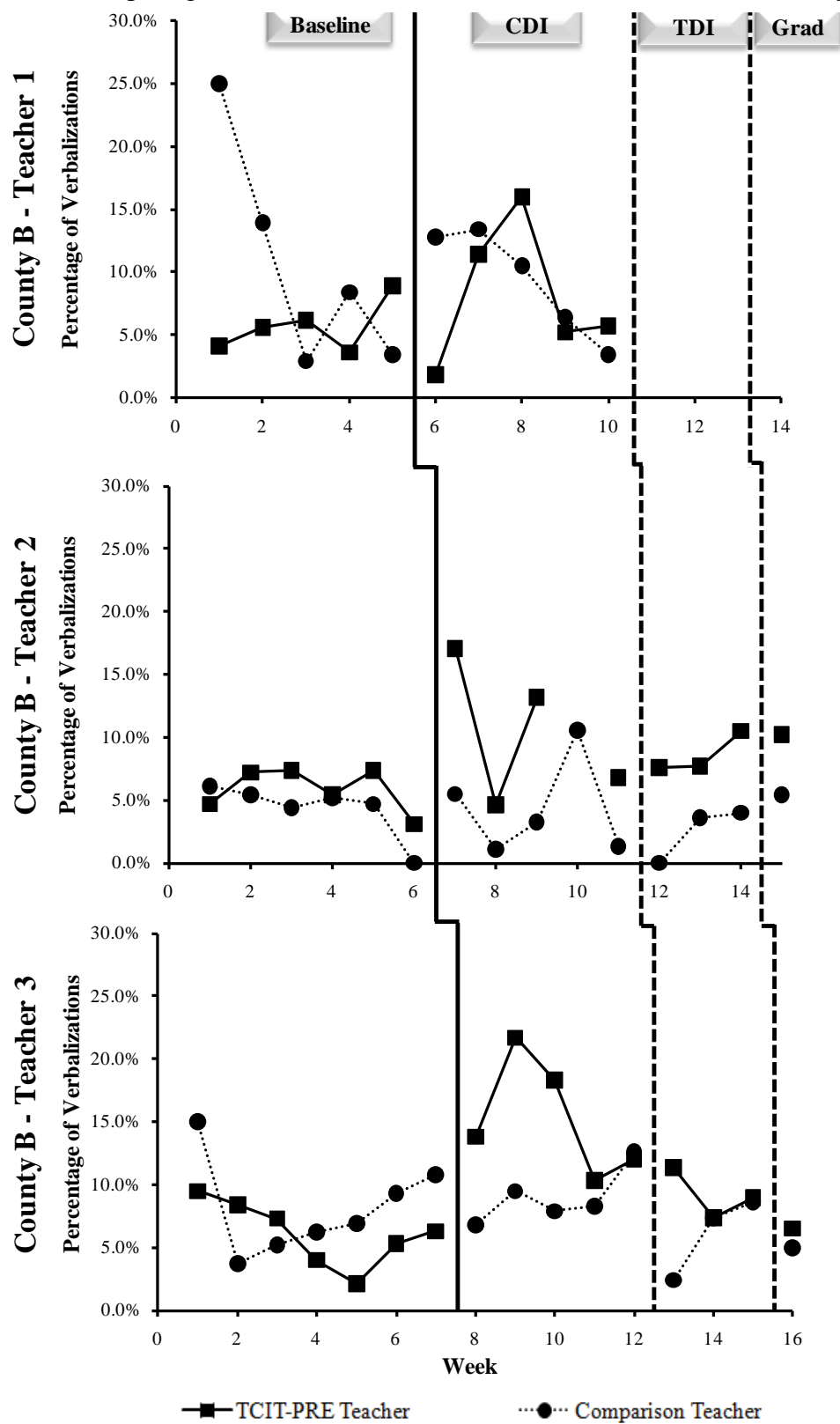
Teacher #2 utilized PRIDE skills more frequently than the comparison teacher at baseline (9.4% and 7.2%, respectively). In contrast to Teacher #1, Teacher #2 continued to utilize more PRIDE skills across phases when compared to the assistant teacher in the classroom. During the CDI phase, Teacher #2 improved their average utilization to 14.8%, whereas the comparison teacher improved to 9.5%. In the weeks of TDI, Teacher #2 continued to demonstrate improvements, with an average of 24.6% as opposed to

7.2% for the comparison teacher. During the graduation week, both Teacher #2 and the comparison teacher used less PRIDE skills (11.1% and 6.7%, respectively) which is not surprising as all observations occurred during instructional times. Overall, Teacher #2 moved from 9.4% at baseline to a peak average of 24.6% during the TDI phase, while the comparison teacher had a baseline of 7.2% and a peak average of 9.7% during the CDI phase.

During the baseline condition, Teacher #3 utilized PRIDE skills more frequently than the comparison teacher (13.6% and 11.8%, respectively). Similar to Teacher #2, Teacher #3 continued to utilize more PRIDE skills across phases when compared to the assistant teacher in the classroom. In the weeks of CDI, Teacher #3's average utilization remained near baseline (13.5%), whereas the comparison teacher decreased to 10.0%. In the TDI phase, Teacher #3 continued to demonstrate improvements, with an average of 23.0% as opposed to 11.0% for the comparison teacher. During the graduation week, Teacher #3 had an average use of 16.8% compared to 15.6% for the comparison teacher. Overall, PRIDE skill utilization for Teacher #3 moved from 13.6% at baseline to a peak average of 23.0% during the TDI phase, while the comparison teacher had a baseline of 11.8% during baseline and a peak of 15.6% during the graduation week.

***Generalization of CDI skills for teachers in County B.*** Overall, teachers in County B also exhibited increased utilization of PRIDE skills in their classroom over time (Figure 14). More specifically, the average utilization of PRIDE skills for teachers in County B during baseline was 5.9% ( $SD = 0.2\%$ ). However, the average utilization of PRIDE skills across teachers improved over the CDI phase ( $M = 10.5\%$ ;  $SD = 4.0\%$ )

Figure 14: Comparing the Use of PRIDE Skills within the Classroom in County B



before slightly decreasing during the TDI phase ( $M = 9.4\%$ ;  $SD = 0.2\%$ ). The average utilization during the graduation week (only two observations per teacher) continued to show improvements over baseline ( $M = 8.4\%$ ;  $SD = 2.6\%$ ).

Again, it is important to note that each teacher's utilization of PRIDE skills in the classroom was not only compared to distinct TCIT-PRE phases, but also compared to the use of the assistant teacher who did not participate in the TCIT-PRE program. During baseline weeks, Teacher #1 utilized PRIDE skills less frequently than the comparison teacher (5.7% and 14.0%, respectively). However, Teacher #1's utilization of PRIDE skills improved during the CDI phase (8.0%) while the comparison teacher's skills decreased (9.3%). As stated several times above, Teacher #1 did not complete the TCIT program and therefore data collection stopped at the end of the CDI phase.

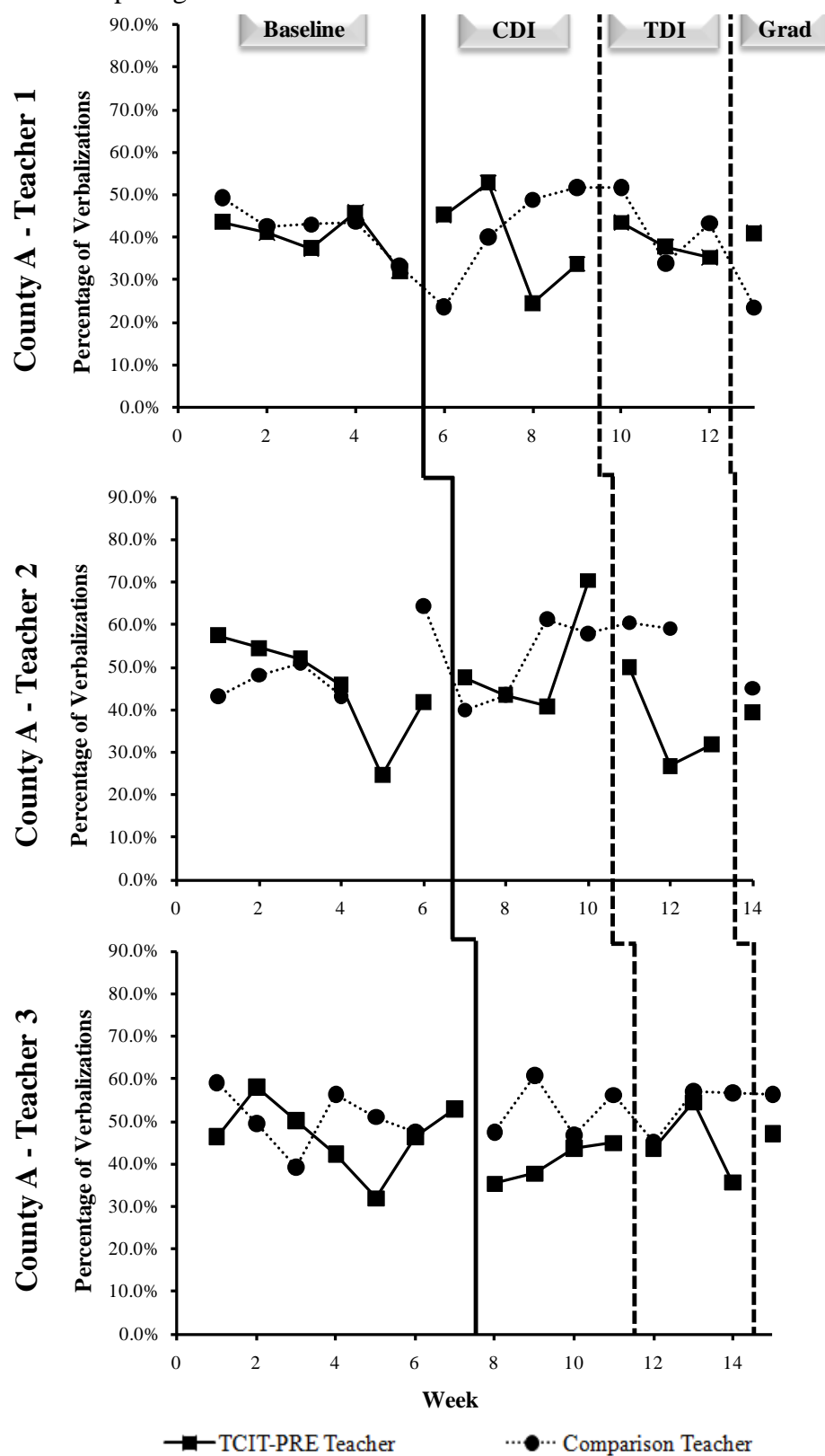
Teacher #2 utilized PRIDE skills more frequently than the comparison teacher at baseline (5.9% and 4.3%, respectively), and Teacher #2 continued to utilize more PRIDE skills across phases when compared to the assistant teacher in the classroom. During the CDI phase, Teacher #2 improved their average utilization to 8.3%, whereas the comparison teacher's skills remained the same (4.4%). In the TDI phase, Teacher #2 continued to demonstrate improvements, with an average of 9.5% as opposed to the comparison teacher whose utilization decreased (2.5%). Both Teacher #2 and the comparison teacher used more PRIDE skills during the graduation week (10.2% and 5.4%, respectively). Overall, Teacher #2 moved from 5.9% at baseline to a peak average of 10.2% during the graduation week, while the comparison teacher had a baseline of 4.3% during baseline and a peak of 5.4% during the graduation week.

During the baseline condition, Teacher #3 utilized PRIDE skills less frequently than the comparison teacher (6.1% and 8.1%, respectively). However, Teacher #3's utilization of PRIDE skills in the classroom improved over time. During the CDI phase, Teacher #3's average utilization improved to 15.2%, whereas the comparison teacher slightly increased to 9.0%. Teacher #3 continued to demonstrate more PRIDE skills than the comparison teacher in the TDI phase (9.3% and 6.1%, respectively), and this pattern continued during the graduation week where Teacher #3 had an average of 6.5% and the comparison teacher had an average of 5.0%. Overall, Teacher #3 moved from 6.1% at baseline to a peak average of 15.2% during the CDI phase, while the comparison teacher had a baseline of 8.2% during baseline and a peak of 9.0% during the CDI phase.

**“Avoid” skills (questions, commands, criticisms).**

*Generalization of “Avoid” skills for teachers in County A.* It is not surprising that teachers frequently utilize questions and commands to teach children new skills. However, teachers who completed the TCIT-PRE program demonstrated decreased utilization of “Avoid” skills (i.e., questions, commands, and criticisms) in their classroom across over time (Figure 15). More specifically, the average utilization of “Avoid” skills for teachers in County A during baseline was 44.3% ( $SD = 3.8\%$ ). The average utilization of “Avoid” skills across teachers in County A decreased over the CDI phase ( $M = 43.3\%$ ;  $SD = 6.3\%$ ) and TDI phases ( $M = 39.9\%$ ;  $SD = 4.3\%$ ). The average utilization during the graduation week (only two observations per teacher) continued to improve over baseline ( $M = 42.5\%$ ;  $SD = 4.1\%$ ).

Figure 15: Comparing the Use of “Avoid” skills within the Classroom in County A





Each teacher's utilization of "Avoid" skills in the classroom was not only compared to distinct TCIT-PRE phases, but also compared to the use of the assistant teacher who did not participate in the TCIT-PRE program (Figure 15). During baseline, Teacher #1 utilized "Avoid" skills less frequently than the comparison teacher (40.0% and 42.3%, respectively). Teacher #1 continued to utilize "Avoid" skills less often than the comparison teacher in the CDI phase (39.1% and 41.0%, respectively). During the TDI phase, Teacher #1 demonstrated a slight decrease in the average utilization of "Avoid" skills (38.9%), before demonstrating the most "Avoid" skills during the Graduation week (41.0%). Overall, Teacher #1 moved from 40.0% at baseline to a best performance of 38.9% during the TDI phase, while the comparison teacher had a baseline of 42.3% during baseline and their best performance (23.5%) during the week of graduation.

During the baseline condition, Teacher #2 utilized "Avoid" skills less frequently than the comparison teacher (46.0% and 49.9%, respectively). In the CDI phase, Teacher #2's average utilization of "Avoid" skills increased to 50.6%, whereas the comparison teacher's skills slightly increased to 50.6%. However, during the TDI phase, Teacher #2 demonstrated improvements, with an average of 36.2% as opposed to a substantial increase (59.8%) for the comparison teacher. Teacher #2 continued to use less "Avoid" skills when compared to their assistant teacher during the graduation week (39.4% and 45.0%, respectively) even though all of the graduation week observations occurred during instructional times. Overall, Teacher #2 moved from 46.0% at baseline to a best performance of 36.2% during the TDI phase, while the comparison teacher had a baseline

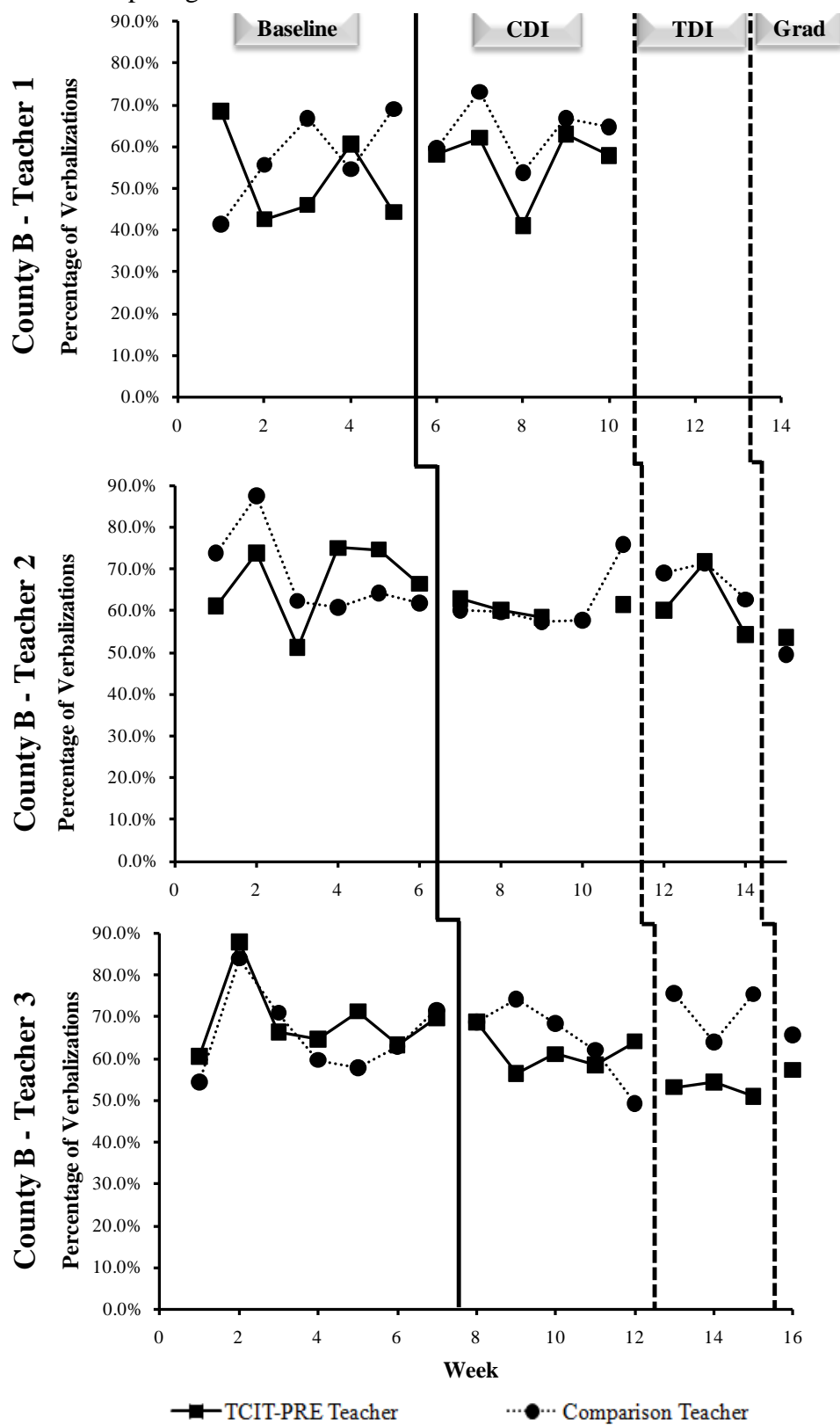
of 49.9% during baseline and their best performance (45.0%) during the week of graduation.

Teacher #3 utilized “Avoid” skills less frequently than the comparison teacher at baseline (46.9% and 50.4%, respectively). During the CDI phase, Teacher #3 exhibited a decrease in “Avoid” skills in the classroom (40.4%), whereas the comparison teacher increased their use of “Avoid” skills to 52.8%. Teacher #3 showed a slight increase in “Avoid” skills in the TDI phase (44.6%) while the comparison teacher remained at the same level (53.0%). During the graduation week, Teacher #3 had an average use of 47.2% compared to 56.3% for the assistant teacher. Overall, Teacher #3 moved from 46.9% at baseline to a best performance of 40.4% during the CDI phase, while the comparison teacher had a best performance during baseline assessments (50.4%).

***Generalization of “Avoid” skills for teachers in County B.*** Similar to County A, teachers who *completed* the TCIT-PRE program in County B exhibited decreased utilization of “Avoid” skills in their classroom over time (Figure 16). More specifically, the average utilization of “Avoid” skills for teachers in County B during baseline was 62.9% ( $SD = 9.1\%$ ). The average utilization of “Avoid” skills across teachers decreased over the CDI phase ( $M = 59.6\%$ ;  $SD = 2.8\%$ ) and TDI phases ( $M = 57.5\%$ ;  $SD = 6.6\%$ ). The average utilization of “Avoid” skills during the graduation week (only two observations per teacher) continued to decrease ( $M = 55.4\%$ ;  $SD = 2.7\%$ ).

Each teacher’s utilization of “Avoid” skills in the classroom was also compared to the use of the assistant teacher who did not participate in the TCIT-PRE program (Figure 16). During the baseline condition, Teacher #1 utilized “Avoid” skills less frequently than

Figure 16: Comparing the Use of “Avoid” skills within the Classroom in County B



the comparison teacher (52.4% and 57.5%, respectively). In the CDI phase, both Teacher #1 and the comparison teacher exhibited increased utilization of “Avoid” skills in the classroom (56.4% and 63.6%, respectively).

Teacher #2 utilized “Avoid” skills at nearly the same level as the comparison teacher at baseline (67.1% and 68.4%, respectively). During the CDI phase, both teachers demonstrated a decrease in “Avoid” skills (Teacher #2: 60.7%; comparison teacher: 62.1%). Teacher #2 continued to exhibit less “Avoid” skills than the assistant teacher in the TDI phase (62.1% and 67.7%, respectively). During the graduation week, both teachers had their best performance (Teacher #2: 53.5%; comparison teacher: 49.5%). Overall, Teacher #2 moved from 67.1% at baseline to a best performance of 53.50% during graduation, while the comparison teacher had an overall average of 66.1% across the TCIT intervention before turning in their best performance (49.5%) during the week of graduation.

Initially, Teacher #3 utilized “Avoid” skills more frequently than the comparison teacher (69.2% and 66.0%, respectively). However, in the CDI phase, Teacher #3 exhibited a substantial decrease in “Avoid” skills (61.8%), whereas the comparison teacher had a slight decrease in their use of “Avoid” skills (64.6%). Teacher #3 continued to show remarkable improvements in “Avoid” skills in the TDI phase (52.8%) while the comparison teacher’s skills increased (71.7%). During the graduation week, Teacher #3 had an average use of 57.3% compared to 65.8% for the assistant teacher. Overall, Teacher #3 moved from 69.2% at baseline to a best performance of 52.83% during the

TDI phase, while the comparison teacher had a baseline of 66.0% with a slight decrease (64.6%) during the CDI phase.

### **Observable Changes in Child Behaviors in the Classroom**

**Social and behavioral competencies.** Children in all classrooms were observed using the BOPS observation system. As stated above, the BOPS has 35 different observable behaviors that are separated into subscales and the instrument was designed to capture both prosocial and challenging behaviors. For the purposes of this study, the Cooperation with Adults, Peer Interactions, and Challenging subscales were utilized. Using the BOPS, socially competent children would demonstrate several behaviors in both the Cooperation with Adults (e.g., active participation in activities, interacting with adults, inviting adults to play) and Peer Interaction subscales (e.g., playing with peers, talking with peers, sharing with peers, waiting their turn). Behaviorally competent children would also demonstrate behaviors in the Cooperation with Adults subscale (e.g., follow instructions, participate in classroom activities) in addition to avoiding all the behaviors within the Challenging Behaviors subscale (e.g., defiance, aggression, disruptive noises).

It was hypothesized that increased utilization of TCIT-PRE skills by Head Start teachers would improve the social and behavioral functioning of Head Start children. Thus, we would expect higher scores on the Cooperation with Adult and Peer Interaction subscales, and decreased scores on the Challenging Behavior subscale over time. When interpreting results, it is important to remember that the BOPS coding system consists of a 15-minute observation period separated into 30-second intervals (25-second

observation interval and a five-second recording interval). Thus, 12.5 minutes is spent actually observing a child, and 2.5 minutes is spent recording observed behaviors. Behaviors are coded as present or absent (rather than a frequency count) during each 25 second period. Therefore, an increase of one point on the BOPS would indicate that the child (or children) demonstrated an additional prosocial or disruptive behavior for a period of 25 seconds, which is substantial when behaviors are only observed for a total of 12.5 minutes.

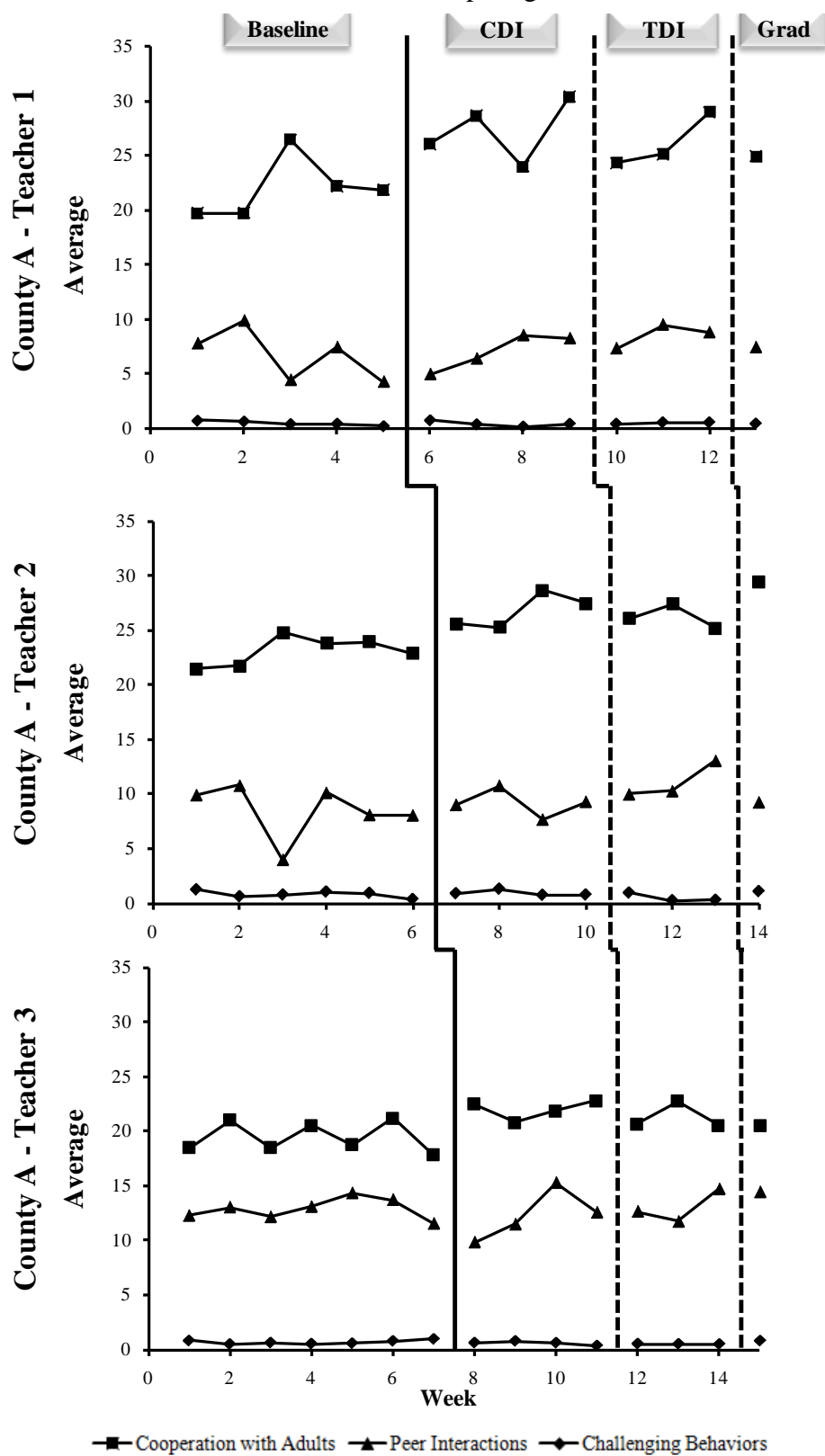
***Overall classroom behaviors in County A.*** Overall, children in County A demonstrated increased social and behavioral competence in the classroom. More specifically, the Cooperation with Adults subscale scores increased from an average of 21.53 ( $SD = 1.86$ ) at baseline to 25.34 ( $SD = 2.90$ ) following the CDI phase. Scores slightly decreased during the TDI phase ( $M = 24.56$ ;  $SD = 2.80$ ) but remained consistent during the graduation week ( $M = 24.94$ ;  $SD = 4.50$ ). In a similar manner, scores on the Peer Interaction subscale increased from baseline ( $M = 9.38$ ;  $SD = 3.15$ ) to the CDI phase ( $M = 9.51$ ;  $SD = 2.64$ ) and through the TDI phase ( $M = 10.89$ ;  $SD = 2.25$ ). Peer Interaction scores slightly decreased during graduation week ( $M = 10.37$ ;  $SD = 3.62$ ) but remained nearly one point above baseline scores. Across children and classrooms, challenging behaviors were relatively infrequent. The average Challenging Behaviors subscale score at baseline was 0.68 ( $SD = 0.16$ ), which remained constant during the CDI phase ( $M = 0.67$ ;  $SD = 0.24$ ). However, challenging behaviors decreased during the TDI phase ( $M = 0.53$ ;  $SD = 0.03$ ) before increasing during the graduation week ( $M = 0.79$ ;  $SD = 0.30$ ).

At the classroom level, children in Classroom #1 demonstrated increased Cooperation with Adults from an average of 22.00 at baseline to 27.27 during the CDI phase (Figure 17). Scores slightly decreased during the TDI phase and graduation ( $M = 26.13$  and  $24.90$ , respectively), but were still above baseline figures. The average Peer Interaction score was 6.76 at baseline which continued to increase during the CDI and TDI phases ( $M = 7.33$  and  $8.54$ , respectively). Peer interaction scores during the graduation week fell between scores in the CDI and TDI phases ( $M = 7.43$ ). Challenging behaviors were relatively infrequent in Classroom #1 and remained stable over time (Baseline = 0.51; CDI = 0.47; TDI = 0.56; and Graduation = .48).

Children in Classroom #2 demonstrated increased Cooperation with Adults from an average of 23.12 at baseline to 26.75 during the CDI phase. These scores remained stable during the TDI phase ( $M = 26.22$ ) before peaking during the graduation week ( $M = 29.46$ ). The average Peer Interaction score started at 8.51 at baseline and continued to increase during the CDI and TDI phases ( $M = 9.21$  and  $11.12$ , respectively), but returned to CDI levels ( $M = 9.27$ ) during graduation week. Challenging behaviors were highest in Classroom #2, but a relatively infrequent event ( $M = 0.82$  at baseline). Scores slightly increased during the CDI phase ( $M = 0.93$ ), dropped during TDI ( $M = 0.50$ ) and then increased during graduation week ( $M = 1.08$ ).

Children in Classroom #3 started with the lowest scores for Cooperation with Adults in County A ( $M = 19.48$  at baseline). Scores improved to 22.00 during the CDI phase, but slightly decreased during the TDI phase and graduation ( $M = 21.32$  and  $20.46$ , respectively). Classroom #3 started with the highest scores for Peer Interactions in

Figure 17: Behavioral Observations of All Participating Head Start Children in County A



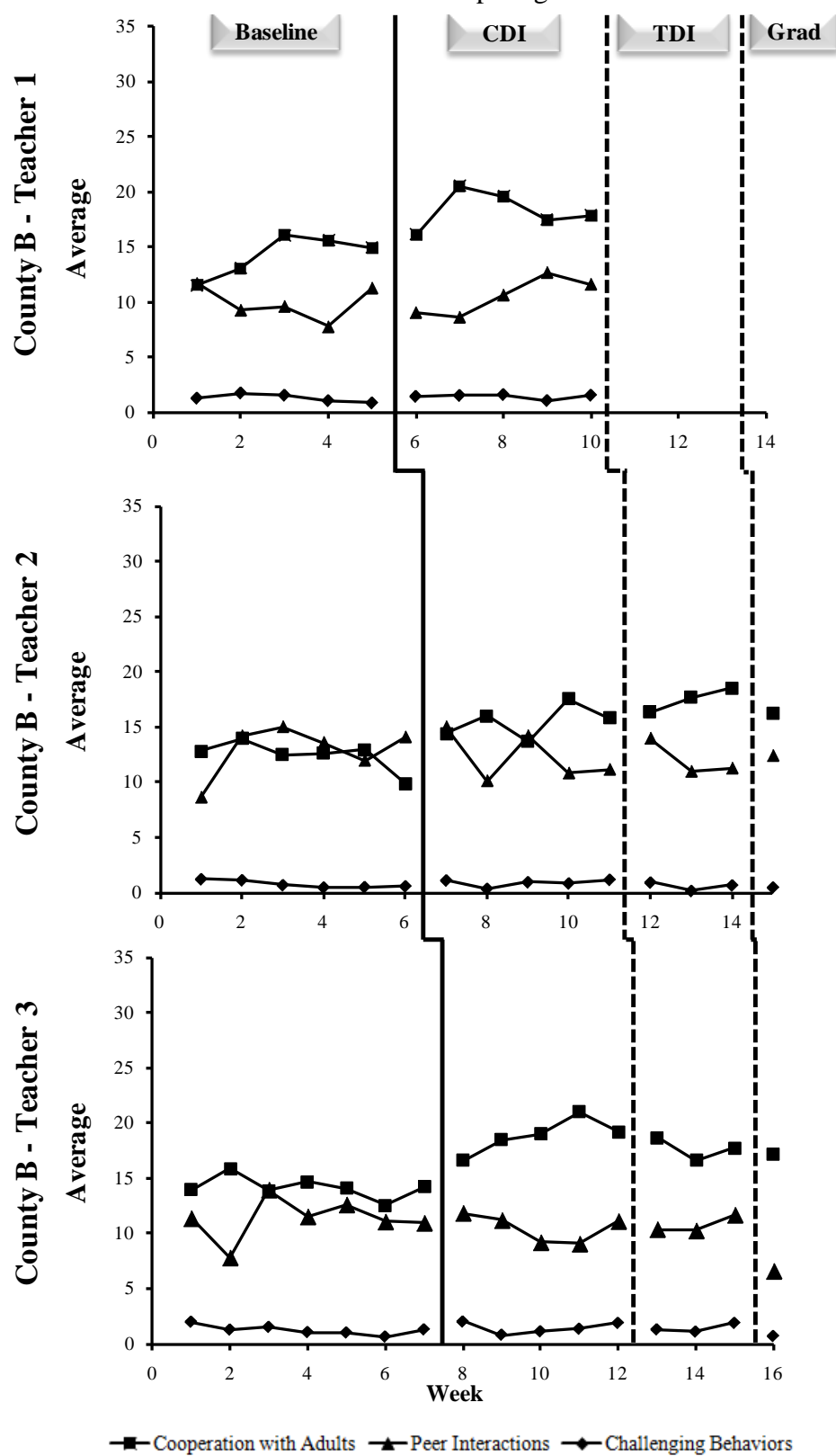


County A ( $M = 12.88$  at baseline), and these scores remained stable during the CDI phase ( $M = 12.65$ ). Peer Interaction scores later climbed during the TDI and graduation weeks ( $M = 13.02$  and  $14.42$ , respectively). Challenging behaviors were relatively infrequent in Classroom #3 with a baseline score of  $0.70$ . Scores slightly decreased during the CDI and TDI phases ( $M = 0.61$  and  $0.52$ , respectively), before increasing during graduation week ( $M = 0.83$ ).

***Overall classroom behaviors in County B.*** Overall, children in County B also demonstrated increased social and behavioral competence in the classroom. More specifically, the Cooperation with Adults subscale scores increased from an average of  $13.64$  ( $SD = 1.01$ ) at baseline to  $17.57$  ( $SD = 1.81$ ) following the CDI phase. Scores remained the same during the TDI phase ( $M = 17.62$ ;  $SD = 0.11$ ) and slightly declined during the graduation week ( $M = 16.67$ ;  $SD = 0.64$ ). Scores on the Peer Interaction subscale remained the same between most phases of TCIT for County B (Baseline:  $M = 11.40$ ;  $SD = 1.48$ ; CDI phase:  $M = 11.10$ ;  $SD = 0.99$ ; TDI phase:  $11.42$ ;  $SD = 0.91$ ) before decreasing during graduation week ( $M = 9.51$ ;  $SD = 4.08$ ). Across children and classrooms, challenging behaviors were relatively infrequent. The average Challenging Behaviors subscale score at baseline was  $1.13$  ( $SD = 0.29$ ), and scores slightly increased during the CDI phase ( $M = 1.27$ ;  $SD = 0.31$ ). Challenging behaviors later decreased during the TDI phase ( $M = 1.01$ ;  $SD = 0.57$ ) and graduation week ( $M = 0.59$ ;  $SD = 0.12$ ).

At the classroom level, children in Classroom #1 demonstrated increased Cooperation with Adults from an average of  $14.25$  at baseline to  $18.34$  during the CDI phase (Figure 18). The average Peer Interaction score for Classroom #1 increased from

Figure 18: Behavioral Observations of All Participating Head Start Children in County B



9.95 at baseline to 10.56 during the CDI phase. Challenging behaviors in Classroom #1 were the highest at baseline ( $M = 1.34$ ) and slightly increased during the CDI phase ( $M = 1.47$ ).

Children in Classroom #2 demonstrated the lowest Cooperation with Adults scores at baseline ( $M = 12.47$ ). However, these scores improved during the CDI phase ( $M = 15.50$ ) and continued to climb during the TDI phase ( $M = 17.54$ ) before slightly decreasing during the graduation week ( $M = 16.21$ ). The average Peer Interaction score was the highest for Classroom # 2 at baseline ( $M = 12.90$ ) and remained relatively constant across the CDI, TDI, and graduation weeks ( $M = 12.25$ ; 12.06, and 12.39 respectively). Challenging behaviors were lowest in Classroom #2 at baseline ( $M = 0.80$ ), and slightly increased during the CDI phase ( $M = 0.91$ ). Scores later dropped during the TDI phase ( $M = 0.61$ ) and graduation weeks ( $M = 0.50$ ).

Cooperation with Adults scores for children in Classroom #3 started at 14.19 during baseline. These scores quickly improved during the CDI phase ( $M = 18.86$ ) before slightly decreasing during the TDI phase and graduation ( $M = 17.70$  and 17.12, respectively). Classroom #3 had an initial Peer Interaction score of 11.34 and scores declined during the CDI phase ( $M = 10.50$ ). Peer Interaction scores remained stable during the TDI phase ( $M = 10.78$ ) before declining during the graduation week ( $M = 6.62$ ). Challenging behaviors in Classroom #3 started with a baseline score of 1.25. Scores slightly increased during the CDI and TDI phases ( $M = 1.43$  and 1.42, respectively), before decreasing during graduation week ( $M = 0.67$ ).

### **Reported Changes in Child Behaviors in the Classroom**

This study also included two secondary, or exploratory, research aims. The purpose of Secondary Aim #1 was to explore converging evidence for the TCIT intervention, and investigate whether changes reported on parent and teacher measures matched the behavior changes observed in the classroom. Secondary Aim #2 explored whether teachers' perceptions of efficacy and satisfaction improved as a function of participation in the TCIT intervention. The secondary aims are exploratory because, in addressing these aims, we were unable to capitalize on the benefits afforded by the multiple-baseline design with respect to ruling out potential confounds or threats to internal validity.

#### **Teacher-report measures.**

*Child Behavior Checklist – Teacher Rating Form (CBCL – TRF).* As stated above, all teachers completed several pre- and post-treatment measures on each child in their classroom. Overall, Analysis of Variance (ANOVA) results indicated significant improvements across all areas of functioning on the CBCL-TRF with the single exception of the Somatic Complaints subscale (Table 9). However, further analyses revealed that most of the significant reductions in symptomatology occurred in County A, as opposed to County B (Tables 10 and 11, respectively). These results are consistent with the behavioral observations (depicted above) which suggest more behavioral changes occurred in County A when compared to County B.

Pre-treatment *T*-scores on the CBCL-TRF were used to separate children into three quartiles or groups (i.e., least behavioral problems, moderate behavioral problems,

and most behavioral problems). Overall, children in the least challenging subgroup (i.e., *T*-Scores of 40 or less at pre-treatment) had similar pre- and post-treatment scores (Table C-1 in Appendix C). That is, as expected, the TCIT intervention was not associated with increased or decreased symptomatology for children with limited behavioral problems in

Table 9

*Overall Pre- and Post-Treatment Differences on the CBCL-TRF (N = 70)*

CBCL Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Emotionally Reactive	52.61	4.00	51.29	1.92	10.01**
Anxious/Depressed	52.15	2.80	50.85	1.03	25.57***
Somatic Complaints	50.71	1.76	51.00	2.01	1.61
Withdrawn	53.17	4.11	52.29	3.29	7.91**
Attention Problems	53.41	4.41	52.64	3.94	7.90**
Aggressive Behavior	54.83	5.97	54.08	5.52	3.60*
<b>Internalizing</b>	46.24	9.67	44.89	9.30	4.10*
<b>Externalizing</b>	50.79	10.12	49.37	9.47	4.46*
<b>Total Problems</b>	49.03	10.23	46.96	10.44	10.50***

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 10

*Pre- and Post-Treatment Differences on the CBCL-TRF for Children in County A (n = 41)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Emotionally Reactive	52.59	4.22	51.07	1.79	6.94**
Anxious/Depressed	51.74	2.58	50.60	0.90	13.27***
Somatic Complaints	50.12	0.78	50.37	1.32	1.00
Withdrawn	52.85	3.88	51.76	2.86	7.27**
Attention Problems	53.70	4.82	52.51	4.02	8.71**
Aggressive Behavior	54.05	5.50	52.94	4.71	7.35**
<b>Internalizing</b>	45.02	9.58	42.34	8.54	9.44**
<b>Externalizing</b>	49.93	10.12	47.90	8.37	6.69**
<b>Total Problems</b>	47.39	10.23	44.41	9.84	13.82***

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 11

*Pre- and Post-Treatment Differences on the CBCL-TRF for Children in County B (n = 29)*

CBCL Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Emotionally Reactive	52.66	3.74	51.59	2.08	3.01 <sup>+</sup>
Anxious/Depressed	52.72	3.03	51.19	1.11	12.14***
Somatic Complaints	51.55	2.35	51.90	2.47	0.66
Withdrawn	53.62	4.46	53.03	3.75	1.37
Attention Problems	53.00	3.79	52.83	3.89	0.32
Aggressive Behavior	55.93	6.52	55.71	6.23	0.09
<b>Internalizing</b>	48.97	9.69	48.48	9.27	0.29
<b>Externalizing</b>	52.00	10.18	51.45	10.22	0.22
<b>Total Problems</b>	51.34	9.93	50.55	10.35	0.61

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

the classroom. However, children with more behavior problems (i.e., *T*-Scores between 41 and 56 at pre-treatment) had significantly less externalizing and total problems following the TCIT intervention (Table C-2 in Appendix C). Equally important, results indicated that children who were identified as most problematic at pre-treatment (i.e., *T*-Scores of 57 and above) had significantly less internalizing, externalizing, and total problems at post-treatment (Table C-3 in Appendix C).

Additional analyses revealed similar results for County A. That is, children in the lowest quartile had almost identical post-treatment scores (Table C-4 in Appendix C), whereas children in the middle quartiles and children in the highest quartile had significantly less internalizing, externalizing, and total problems post-treatment (Tables C-5 and C-6 in Appendix C). Completely opposite results were found in County B where no significant findings were reported across the lowest, middle, and highest quartiles (Tables C-7 to C-9 in Appendix C).

Finally, CBCL-TRF scores were evaluated at the TCIT Coach level. It is important to keep in mind when interpreting these results that both TCIT Coach #1 and Coach #2 were involved in two classrooms, while TCIT Coach #3 was limited to a single classroom teacher. The two classrooms led by TCIT Coach #1 had significant decreases in internalizing and total problems following the TCIT intervention (with scores approaching significance for externalizing problems; C-10 in Appendix C). The two classrooms led by TCIT Coach #2 had significant declines in externalizing and total problems following the TCIT program (Table C-11 in Appendix C). Lastly, the single classroom led by TCIT Coach #3 did not report any significant behavioral changes (Table C-12 in Appendix C).

*Sutter-Eyberg Student Behavior Inventory – Revised (SESBI-R)*. Overall, ANOVA results indicate significant improvements across the Intensity and Problem scales on the SESBI-R (Table 12). However, much like the results for the CBCL-TRF, further analyses revealed that all of the significant reductions in symptomatology occurred in County A, as opposed to County B (Tables 13 and 14, respectively). Again, these results are consistent with the behavioral observations (depicted above) which suggest more behavioral changes for children in County A when compared to children in County B.

Pre-treatment *T*-scores on the SESBI-R were used to separate children into three quartiles or groups (i.e., least behavioral problems, moderate behavioral problems, and most behavioral problems). Overall, the TCIT-PRE program was not associated with increased or decreased problematic behavior for children with limited behavioral

Table 12

*Overall Pre- and Post-Treatment Differences on the SESBI-R (N = 71)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	94.48	43.14	82.38	39.60	22.61***
Intensity T-Score	49.38	7.83	47.10	7.21	24.36***
Problem Raw Score	5.26	6.57	4.04	5.27	4.58*
Problem T-Score	47.61	5.88	46.40	4.48	5.50*

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 13

*Pre- and Post-Treatment Differences on the SESBI-R for Children in County A (n = 42)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	96.79	42.19	80.50	40.56	24.89***
Intensity T-Score	49.79	7.65	46.67	7.39	27.36***
Problem Raw Score	5.32	7.03	2.88	4.03	12.99***
Problem T-Score	47.67	6.30	45.40	3.43	12.96***

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 14

*Pre- and Post-Treatment Differences on the SESBI-R for Children in County B (n = 29)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	91.14	45.02	85.10	38.70	2.46
Intensity T-Score	48.79	8.17	47.72	7.02	2.46
Problem Raw Score	5.17	5.97	5.72	6.38	0.37
Problem T-Score	47.52	5.31	47.84	5.41	0.17

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

problems in the classroom (Table C-13 in Appendix C). However, children with more behavior problems had significantly less intense problematic behaviors following the



TCIT intervention (Table C-14 in Appendix C). Equally important, children who were identified as most problematic at pre-treatment had significant declines in the intensity of challenging behaviors and teachers reported significantly less problematic behaviors (Table C-15 in Appendix C).

Examination of results at the County level indicated that all children in County A had significantly less intense problematic behaviors, and children with more challenging behaviors also had significant reductions in the number of problematic behaviors (Tables C-16 to C-18 in Appendix C). In County B, children in the lowest quartile did not have any significant changes in the frequency or intensity of behavioral problems (Table C-19 in Appendix C). Children in the middle quartiles had a significant increase in the reported number of problematic behaviors, but no significant changes in the intensity of problematic behaviors (Table C-20 in Appendix C). Lastly, children in the highest quartile did not have any significant changes, although results were approaching significance ( $p < .10$ ) for decreased intensity and number of problematic behaviors (Table C-21 in Appendix C).

Finally, SESBI-R scores were evaluated at the TCIT Coach level. The two classrooms led by both TCIT Coach #1 and Coach #2 had significant decreases in the intensity and number of problematic behaviors following the TCIT-PRE program (Tables C-22 and C-23 in Appendix C). On the contrast, the classroom teacher for TCIT Coach #3 reported equally intense but significantly more problematic behaviors at post-treatment (Table C-24 in Appendix C).

*Social competence and behavior evaluation (SCBE).* Overall, ANOVA results indicated several significant results on the SCBE, including significant improvements on the Oppositional/Cooperative subscale and the Social Competence and General Adaptation Scales (Table 15). It is important to note that the SCBE is different from many other clinical assessments in that higher scores reflect improvement (rather than increased problems). Consistent with the assessments listed above, teacher-reports for children in County A were significantly better when compared to County B. In fact, significant improvements were reported on every subscale and scale of the SCBE for County A (Table 16). Contrarily, the two significant subscales (i.e., Angry/Tolerant, Egotistical/Prosocial) and General Adaptation Scale for County B reflected significant declines in those skills or abilities for County B (Table 17).

Table 15

*Overall Pre- and Post-Treatment Differences on the SCBE (N = 67)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Depressive / Joyful	49.00	9.34	49.99	11.06	1.03
Anxious / Secure	50.34	8.22	52.38	9.90	7.80**
Angry / Tolerant	49.66	8.78	50.43	11.03	1.05
Isolated / Integrated	49.88	8.08	50.37	11.13	0.37
Aggressive / Calm	48.22	6.95	50.13	10.49	6.33**
Egotistical / Prosocial	48.51	8.28	50.18	10.64	5.26*
Oppositional / Cooperative	46.28	7.85	49.52	9.92	13.07***
Dependent / Autonomous	46.45	6.52	46.78	6.79	0.32
<b>Success with Social Competence</b>	46.58	8.17	49.85	11.02	12.30***
<b>Success with General Adaptation</b>	48.46	8.30	50.18	11.01	4.87*

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 16

*Pre- and Post-Treatment Differences on the SCBE for Children in County A (n = 42)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Depressive / Joyful	47.83	8.69	50.21	11.94	6.03**
Anxious / Secure	50.57	7.98	54.10	10.86	21.84***
Angry / Tolerant	49.48	9.42	52.43	12.60	12.18***
Isolated / Integrated	49.26	7.92	51.33	12.58	4.29*
Aggressive / Calm	49.40	7.87	53.14	11.42	13.29***
Egotistical / Prosocial	48.29	9.61	52.43	12.37	27.85***
Oppositional / Cooperative	45.69	8.57	52.19	11.09	46.33***
Dependent / Autonomous	46.71	6.07	48.52	7.09	11.59***
<b>Success with Social Competence</b>	47.26	8.13	53.14	11.52	51.50***
<b>Success with General Adaptation</b>	48.19	8.88	52.40	12.61	26.85***

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 17

*Pre- and Post-Treatment Differences on the SCBE for Children in County B (n = 25)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Depressive / Joyful	50.96	10.23	49.60	9.62	0.48
Anxious / Secure	49.96	8.77	49.49	7.35	0.12
Angry / Tolerant	49.96	7.75	47.08	6.67	6.42*
Isolated / Integrated	50.92	8.40	48.76	8.13	3.23
Aggressive / Calm	46.24	4.50	45.08	6.10	2.21
Egotistical / Prosocial	48.88	5.53	46.40	5.12	6.15*
Oppositional / Cooperative	47.28	6.50	45.04	5.19	3.85
Dependent / Autonomous	46.00	7.33	43.84	5.15	3.72
<b>Success with Social Competence</b>	45.44	8.28	44.32	7.49	0.39
<b>Success with General Adaptation</b>	48.92	7.38	46.44	6.17	4.41*

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Pre-treatment *T*-scores on the SCBE were used to separate children into three quartiles or groups (i.e., least adapted, moderately adapted, and most adapted). Overall,

the TCIT intervention was associated with increased social competence for children who were identified as least adapted prior to the TCIT program (Table C-25 in Appendix C). Children initially identified as moderately adapted had significant improvements in both social competence and general adaptation following the TCIT intervention (Table C-26 in Appendix C). Scores for children who were identified as the most adapted at pre-treatment remained relatively stable at post-treatment (Table C-27 in Appendix C).

In County A, children who were initially identified as the least adapted did not have any significant improvements or declines in social competence or general adaptation (Table C-28 in Appendix C). However, children originally identified as moderately or most adapted had significant improvements in both their social competence and general adaptation (Tables C-29 and C-30 in Appendix C, respectively). In County B, significant decreases in social competence and general adaptation were found for the children initially identified as the most adapted, while scores for the least and moderately adapted children remained relatively constant (Table C-31 to C-33 in Appendix C).

Finally, scores were again evaluated at the TCIT Coach level. The two classrooms led by both TCIT Coach #1 reported significant improvements in social competence and general adaptation following the TCIT intervention (Table C-34 in Appendix C). The two classrooms led by Coach #2 did not report any significant improvements or declines in social competence or adaptation (Table C-35 in Appendix C). The classroom teacher for TCIT Coach #3 reported significant improvements in social competence at post-treatment (Table C-36 in Appendix C).

### Caregiver-report measures.

*Child Behavior Checklist /1 ½ - 5 (CBCL).* As stated above, several parents also completed pre- and post-treatment measures on their child's behavior at home (as opposed to the classroom). The purpose of the assessments was to evaluate whether changes in the classroom generalized to the home environment. Unfortunately, only 52 caregivers completed the pre-treatment assessments, and 27 of those caregivers completed the post-treatment assessment. However, overall, ANOVA results indicate significant improvements on three CBCL subscales (i.e., emotional reactivity, somatic complaints, and aggression), as well as decreased internalizing and externalizing symptoms following the TCIT program (Table 18).

Table 18

*Overall Pre- and Post-Treatment Differences on the Caregiver CBCL (N = 27)*

CBCL Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		F
	M	SD	M	SD	
Emotionally Reactive	52.61	3.60	50.82	0.99	7.58**
Anxious/Depressed	51.43	1.83	51.32	1.89	0.09
Somatic Complaints	53.50	5.47	50.63	1.10	8.71**
Withdrawn	53.64	5.70	52.57	3.98	2.25
Attention Problems	51.91	2.37	51.48	2.04	1.15
Aggressive Behavior	54.36	5.81	52.43	3.58	5.17*
<b>Internalizing</b>	46.96	8.98	43.71	8.08	8.94**
<b>Externalizing</b>	48.89	9.90	46.14	9.45	3.78 <sup>+</sup>
<b>Total Problems</b>	47.71	10.52	45.89	9.78	2.28

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Although a limited total number of caregivers completed post-treatment assessments, the distribution between counties was nearly equal (i.e., 12 caregivers in County A, 15 caregivers in County B). Caregivers in County A reported significantly less

Table 19

*Pre- and Post-Treatment Differences on the Caregiver CBCL for Children in County A (n = 12)*

CBCL Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Emotionally Reactive	52.08	3.53	50.75	0.94	1.71
Anxious/Depressed	51.33	1.88	50.75	1.49	3.01
Somatic Complaints	54.42	7.09	50.63	1.13	4.28 <sup>+</sup>
Withdrawn	56.00	7.20	54.08	5.21	4.71*
Attention Problems	52.33	2.77	52.12	2.70	0.10
Aggressive Behavior	55.50	7.12	52.67	3.80	4.78*
<b>Internalizing</b>	46.67	11.40	41.58	7.85	13.07**
<b>Externalizing</b>	50.92	10.72	46.83	9.30	4.88*
<b>Total Problems</b>	49.17	12.48	46.33	10.74	3.51 <sup>+</sup>

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 20

*Pre- and Post-Treatment Differences on the Caregiver CBCL for Children in County B (n = 15)*

CBCL Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Emotionally Reactive	53.00	3.72	50.88	1.06	6.13*
Anxious/Depressed	51.50	1.86	51.75	2.08	0.19
Somatic Complaints	52.81	3.97	50.63	1.12	4.48*
Withdrawn	51.88	3.56	51.44	2.31	0.17
Attention Problems	51.59	2.06	51.00	1.27	1.37
Aggressive Behavior	53.50	4.68	52.25	3.53	1.23
<b>Internalizing</b>	47.19	7.06	45.31	8.13	1.50
<b>Externalizing</b>	47.38	9.30	45.62	9.84	0.72
<b>Total Problems</b>	46.63	9.06	45.56	9.35	0.35

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

withdrawal and aggression in the home following the TCIT-PRE program. They also reported significantly less internalizing and externalizing problems (with total problems in the home approaching significance; Table 19). Caregivers in County B reported

significantly less emotional reactivity and somatic complaints in the home following the TCIT-PRE program (Table 20).

***Eyberg Child Behavior Inventory – Revised (ECBI-R)***. Overall, ANOVA results indicated a significant decrease in the number of reported behavioral problems in the home following the TCIT-PRE program (Table 21). Similar to teacher reports above, more behavioral improvements were reported for children in County A when compared to children in County B. In fact, the caregivers in County A reported significant reductions in the intensity and number of behavioral problems in the home at post-treatment (Table 22). On the contrary, caregivers in County B (Table 23) did not report

Table 21

*Overall Pre- and Post-Treatment Differences on the ECBI (N = 27)*

ECBI Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	101.67	32.63	96.74	26.82	2.16
Intensity T-Score	51.41	9.16	50.00	7.58	2.15
Problem Raw Score	6.44	7.06	3.89	4.08	7.79**
Problem T-Score	49.15	9.13	45.89	5.27	7.49**

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 22

*Pre- and Post-Treatment Differences on the ECBI for Children in County A (n = 12)*

ECBI Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	112.33	37.32	98.83	28.93	7.88*
Intensity T-Score	54.42	10.48	50.58	8.20	7.53*
Problem Raw Score	8.75	8.58	4.75	4.88	7.28*
Problem T-Score	52.08	11.14	47.00	6.35	6.73*

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

any significant increases or decreases in the intensity or number of problematic behaviors.

Table 23

*Pre- and Post-Treatment Differences on the ECBI for Children in County B (n = 15)*

ECBI Scales	Pre-Treatment Assessment		Post-Treatment Assessment		F
	M	SD	M	SD	
Intensity Raw Score	93.13	26.59	95.07	25.90	0.24
Intensity T-Score	49.00	7.46	49.53	7.31	0.23
Problem Raw Score	4.60	5.14	3.20	3.32	1.62
Problem T-Score	46.80	6.64	45.00	4.24	1.63

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

### Changes in Perceptions of Teaching Efficacy and Overall Job Satisfaction

No significant differences were found between pre- and post-treatment efficacy scores for the five teachers that completed the TCIT program. Overall, mean scores increased from 73.0 ( $SD = 2.12$ ) to 77.2 ( $SD = 6.72$ ) following the seven-week intervention which is an average increase of 0.6 per week on a 100-point scale. Follow-up examinations by county found a mean change in scores in County A from 72.67 ( $SD = 3.00$ ) to 78.67 ( $SD = 8.15$ ), and a mean increase in County B from 73.0 ( $SD = 0.00$ ) to 75.0 ( $SD = 5.66$ ). Additional analyses revealed that the two teachers led by TCIT Coach #1 had increased their efficacy ratings from 74.5 ( $SD = 2.12$ ) to 81.50 ( $SD = 9.19$ ), the two teachers led by TCIT Coach #2 reported increased efficacy from 71.50 ( $SD = 2.12$ ) to 76.0 ( $SD = 4.23$ ), and the teacher led by TCIT Coach #3 reported a decrease in efficacy (73.0 to 71.0).

No significant differences were found between pre- and post-treatment teaching satisfaction scores for the five teachers that completed the TCIT program. In fact, overall,



the average score remained the exact same for pre-treatment ( $M = 116.40$ ;  $SD = 24.92$ ) and post-treatment ( $M = 117.0$ ;  $SD = 16.37$ ). Follow-up examinations by county found a mean increase in scores in County A from 124.33 ( $SD = 15.31$ ) to 130.00 ( $SD = 20.66$ ) following the seven-week intervention which is an average increase of 0.81 per week on a 150-point scale. However, mean satisfaction scores in County B decreased from 106.0 ( $SD = 14.14$ ) at pre-treatment to 96.00 ( $SD = 15.56$ ) at post-treatment. Additional analyses revealed that the two teachers led by TCIT Coach #1 had increased their satisfaction ratings from 133.0 ( $SD = 4.24$ ) to 141.50 ( $SD = 7.78$ ) on the 150-point scale, the two teachers led by TCIT Coach #2 reported increased satisfaction from 101.50 ( $SD = 7.78$ ) to 107.0 ( $SD = 0.0$ ), and the teacher led by TCIT Coach #3 reported decreased satisfaction from 116 to 85.

## **Chapter 4: Discussion**

Overall, research findings of the present study indicated that Head Start teachers were able to acquire and master the TCIT-PRE skills with individual and small groups of children during training sessions. Further, the TCIT-PRE skills acquired in the training room generalized to the classroom environment. Moreover, increased TCIT-PRE skill utilization by Head Start teachers was associated with improved social and behavioral competence for Head Children both in the classroom and at home. These improvements were not only observed, but also reported by Head Start teachers and caregivers. Equally important, the TCIT-PRE program was well received by Head Start teachers, many of whom reported increased efficacy and satisfaction after completing the program. In addition, the Head Start Administrators were pleased with the TCIT-PRE program and requested that all current/new staff complete the program as part of their training curriculum.

### **Acquisition of TCIT-PRE Skills in the Training Room**

The first primary aim of the study was based on the PCIT intervention and required teachers to demonstrate mastery criteria of both teacher-child relationship enhancement skills and behavior management skills in order to successfully complete the entire program. In fact, similar to the PCIT protocol (e.g., McNeil & Hembree-Kigin, 2010; PCIT International Manual, 2011), teachers had to demonstrate mastery criteria of relationship enhancement (or PRIDE) skills before progressing to the second treatment phase. Consistent with the first primary hypothesis, all participating teachers were able to meet CDI mastery criteria with an individual child. While not a requirement for

progression to the second phase of the TCIT-PRE program, four out of five teachers were also able to demonstrate CDI mastery level skills with both pairs and groups of three children. In a similar manner (and consistent with the first primary hypothesis), all teachers in County A, and one out of two teachers in County B, initially demonstrated TDI mastery level skills with both individual and groups of children. The teacher in County B that did not meet TDI mastery with an individual child at the beginning of the session was able to meet criteria in the middle of sessions. These results commonly reflect instances where individuals do not practice homework as prescribed (McNeil & Hembree-Kigin, 2010).

Across nearly every outcome in this study, more significant (and consistent) positive findings occurred in County A when compared to County B. Differences between counties were initially observed during the acquisition of CDI skills, whereby all three teachers in County B required two additional coaching sessions to meet mastery criteria with an individual child. However, overall results between the two counties are not surprising after evaluating homework compliance. Across the TCIT-PRE program, teachers in County A completed their daily Special Time homework assignments 82.0% of the time (approximately four out of five days), whereas teachers in County B only completed their homework assignments 38.4% of the time (approximately two out of five days). Homework completion rates for teachers in County B were comparable to recent findings from the DePaul model ( $M = 37.5\%$ ,  $SD = 28.9$ ; Lyon et al., 2009). It is important to recognize that early childhood educators have an increasingly demanding daily schedule (Balles, 2008). However, the PCIT literature has found that families are

more successful when they complete most of their homework, whereas families who complete homework fewer than three times per week (42.9%) may not progress through treatment (McNeil & Hembree-Kigin, 2010).

As stated above, each of the TCIT-PRE sessions in the present study were videotaped to evaluate the acquisition and mastery of skills (and assess treatment integrity by TCIT-PRE coaches). These videotapes provided invaluable information about teachers, children, and TCIT-PRE coaches. For instance, during the course of the program, all three teachers in County A spontaneously commented on the importance of the Special Time homework. For example, teacher comments included: “Getting individual, one on one, time with the kids is one of the best parts,” “(homework) makes such a difference,” and “It’s so much easier now that I know how to use it from practicing it in Special Time. It just comes so naturally. You don’t realize you are using them (PRIDE Skills)”. Although TCIT-PRE coaches devoted time at the beginning of each session to address any general problems or questions (including problem-solving difficulties with homework compliance), overall rates of homework completion did not necessarily increase. Thus, future TCIT-PRE studies will include a motivational component designed to improve homework compliance. Many treatments are increasingly adding motivational components to improve outcomes, including recent PCIT research that demonstrated improved retention for low-moderately motivated child welfare clients when PCIT was combined with a motivational intervention (Chaffin et al., 2009).

In addition to homework completion, TCIT-PRE coach experience may have led to differences in the acquisition and generalization of TCIT-PRE skills for teachers in each county. In the present study, the three teachers who completed the TCIT-PRE program in County A were coached by Coach #1 and Coach #2, whereas the two teachers in County B were coached by Coach #2 and Coach #3. TCIT Coach #1 had nearly five years of graduate training, previous experience with several PCIT cases (both home- and clinic-based), and had delivered TCIT services in the pilot project. TCIT Coach #2 had nearly three years of graduate training, had completed one clinic-based PCIT case (and several home-based cases), and delivered TCIT-PRE services to two previous teachers. TCIT Coach #3 was in the second year of graduate training, had never completed any PCIT or TCIT cases, and had limited clinical experience prior to attending graduate school. The difference in PCIT and TCIT experience was also reflected in the integrity results, which differed across coaches (Coach #1 = 96%; Coach #2 = 97%, and Coach #3 = 88%). Coach #3 had five sessions with integrity results below 90%, and spent an additional session teaching skills which resulted in a missed TDI coaching session for Teacher #3 in County B.

Although the TCIT-PRE program is a manualized treatment, results from this study indicate that coaches should have prior experience with PCIT and TCIT before conducting the intervention. In fact, training in the TCIT-PRE program will resemble much of the training requirements already established through PCIT International ([www.pcit.org](http://www.pcit.org)). That is, the TCIT-PRE program will follow an implementation model where individuals who wish to deliver TCIT-PRE services will need to complete a series

of training (both basic and advanced) as well as receive ongoing supervision from the developers of the program before independently conducting TCIT-PRE services.

### **Generalization of TCIT-PRE Skills to the Classroom Environment**

The second primary aim of the present study was to determine if the skills acquired in the training room would generalize to the broader classroom environment. Previous adaptations of PCIT for the classroom setting have demonstrated promising findings. However, classroom observations in previous studies were either not collected (McIntosh et al., 2000), occurred during a single activity (circle time; Filcheck et al., 2004), or were limited to a single post-treatment observation where the teachers were well aware of the observers (Tiano & McNeil, 2006). The single exception was Karen Budd and colleagues who observed teachers during a variety of activities (e.g., circle time, lessons, free play, transition periods) and found moderate improvements in teachers' positive attention skills in the classroom following training in CDI skills (Lyon et al., 2009). Similar to Budd and colleagues, the present study observed teachers in a wide variety of contexts (e.g., instructional time, free time) and environments (e.g., classroom, outside) to obtain a more complete picture of TCIT-PRE skill utilization in the classroom.

Consistent with the second primary hypothesis, all of the Head Start teachers who completed the TCIT-PRE program in both counties demonstrated increased utilization of CDI skills in their classroom. In fact, on average, teachers in both counties nearly doubled their baseline utilization of skills in many phases of the program (i.e., TDI phase for County A; CDI and TDI phase for County B). Importantly, differences in skill utilization in the classroom were even more apparent when comparing TCIT-PRE

teachers with their assistant teachers who did not participate in the program. Two out of three comparison teachers in County A had relatively stable CDI skill utilization throughout time, whereas all comparison teachers in County B exhibited a decrease in positive interaction skills over time. The single exception occurred with the assistant teacher in Classroom #1 of County A who demonstrated improved PRIDE skills over time. This increased skill utilization by the assistant was noticeable and acknowledged by a TCIT-PRE teacher in County A during a videotaped session, when the teacher noted “the other teachers are picking up on these skills too.”

Consistent with the second primary hypothesis, all teachers who completed the TCIT-PRE program were also able to effectively demonstrate and utilize behavior management skills (e.g., Pause and Replay technique). Interestingly, while not a focus of the present study, all teachers who completed the TCIT-PRE program were able to provide quality instruction while reducing the utilization of “Avoid” skills (i.e., questions, commands, criticisms) in the classroom. Quality instruction was assessed independently by a national Head Start review team whose visit to all three participating facilities corresponded with the graduation week for Teacher #2 in both counties. Again, “Avoid” skills for participating teachers were compared to their assistant teachers and most teachers demonstrated changes that were easily observable when compared to assistant teachers.

Previous adaptations of PCIT for the classroom setting have focused solely on reducing criticism, and not included assessments of commands or questions in their classroom observations. Findings from those studies have ranged from substantial

decreases in criticism (Filcheck et al., 2004) to limited changes in rates of criticism (Tiano & McNeil, 2006) and low baseline levels of criticism that remained unchanged (Lyon et al., 2009). Similar to Budd and colleagues (Lyon et al., 2009), actual criticisms in the classroom were low frequency occurrence in County A at baseline (3.9%), but decreases were still observed during the TCIT-PRE program (overall mean across CDI and TDI was 2.8%). Teachers in County B had substantially more critical statements at pre-treatment (10.6%) and those figures were cut in half during the TCIT-PRE program (overall mean across CDI and TDI was 5.3%).

### **Observable Changes in Social and Behavioral Competence**

Currently, many studies that target child outcomes in preschool-aged youth rely on teacher (or caregiver) reports, without the direct assessment of child skills or abilities (Domitrovich et al., 2007). However, childhood behaviors are one of many multifaceted constructs that cannot be completely understood from a single form of assessment, and a variety of assessment techniques are essential (Kazdin, 2003). Live observations are considered to be the hallmark of behavioral assessments (Bagner, Harwood, & Eyberg, 2006) and the gold standard for objectivity in behavioral research, particularly as measures of treatment effects (Pelham et al., 2005).

The third aim of the present study utilized independent behavior observations to corroborate teacher (and caregiver) reports of behavioral changes. Consistent with the third primary hypothesis, the utilization of TCIT-PRE skills demonstrated improvements in the social and behavioral functioning of Head Start children in both counties. Because the TCIT-PRE program is a teacher training program, it is not surprising that most of the



behavioral changes (observed using the BOPS) involved increased cooperation with teachers. More specifically, children exhibited increased: (a) compliance with adult requests; (b) participation in teacher led activities; (c) communication with teachers; (d) teacher-child play; and (e) prosocial skills such as sharing. Although not as dramatic, most classrooms also had observable improvements in peer interactions which included talking, sharing, and playing with peers. Across both counties, challenging behaviors (e.g., aggression, disruptive behaviors, defiance) were relatively rare across the classroom, and typically exhibited by two to four children in each classroom. The ability to observe child behaviors across a wide variety of contexts further advances a growing body of TCIT literature that, in the past, has been limited to observing children in a training room (McIntosh et al., 2000) or during a specific task (circle time; Filcheck et al., 2004).

### **Teacher and Caregiver Reports of Changes in Social and Behavioral Competence**

The TCIT-PRE program was designed to increase school readiness by improving social and behavioral competence for preschool children; competencies identified as independent and important predictors of future academic achievement (Webster-Stratton et al., 2008). The present study incorporated both Head Start teacher-report and Head Start parent-report measures to gain a more comprehensive understanding of changes in social and behavioral competence. Secondary aim #1 was created to provide converging evidence for the TCIT intervention, and investigate whether changes reported on parent and teacher assessments match the behavior changes observed in the classroom. Prior to the TCIT-PRE program, each Head Start teacher reported ongoing behavioral problems

for at least three (if not more) children in their classroom, which is consistent with previous findings with Head Start populations suggesting that as many as 30% of preschool children exhibit ongoing conduct problems for teachers (e.g., Lopez et al., 2000),

Consistent with secondary hypothesis #1, overall, statistically significant improvements in social and behavioral functioning were reported on all teacher-report measures. In addition to statistical significance, it is also important to evaluate the clinical significance of the results. Many of the reported changes, although significant, were relatively small. These results likely reflect the fact that many children in each classroom did not exhibit problematic behaviors prior to the TCIT-PRE program. It is important to note that the TCIT-PRE program was not associated with increased problematic behaviors (or decreased social competence) for children who initially had limited problems. Thus, most of the changes were found in children who were identified as having at least moderate behavioral problems at the start of the TCIT-PRE program. In fact, findings from the study indicate that children with more behavioral problems pre-treatment had the largest improvements reported post-treatment. Additional research is currently underway with data from this study to further examine children who were initially identified as the most problematic prior to the initiation of the TCIT-PRE program.

Interestingly, at the end of the study, only one child was identified as exhibiting significant externalizing problems and no significant internalizing problems were reported for any children across classrooms on the CBCL-TRF. Similarly, SESBI-R

results identified a single child (different from the one identified on the CBCL) as having significantly intense behavioral problems, but no children with a significant number of problems at post-treatment. These two children were also identified as having problems with social competence and general adaptation on the SCBE. Additionally, six other children were identified as having problems with social competence on the SCBE at post-treatment, with five of the six enrolled in speech therapy services prior to the TCIT-PRE intervention. Three of those six children also had continued problems with general adaptation as reported on the SCBE.

Although a limited number of caregivers completed both the pre- and post-treatment assessments (38.6%), significant improvements were reported in the home following the TCIT-PRE program (which is consistent with secondary hypothesis #2). More specifically, caregivers reported decreased aggression, emotional reactivity, and overall internalizing problems (with levels approaching significance for decreased externalizing problems) on the CBCL. Consistent with teacher-report, more significant improvements were reported from caregivers in County A, including significant decreases in overall internalizing and externalizing problems at home (with levels approaching significance for decreased total problems). Caregivers in County B reported significant improvements in both emotional reactivity and somatic complaints at post-treatment. On the ECBI, caregivers in County A reported significant decreases in both the intensity and number of behavioral problems in the home following the TCIT-PRE program. Overall, these results provide preliminary evidence that positive child outcomes generalize from the classroom to the home environment. This is similar to PCIT findings

of generalization from the controlled clinic setting to the home environment (e.g., Schuhmann et al., 1998), as well as from the home to school classrooms (McNeil et al., 1991), without direct intervention in those settings.

### **Teaching Efficacy and Job Satisfaction**

The final aim explored the relationship between the TCIT-PRE program and teachers' perceptions of efficacy and satisfaction. Prior to starting the TCIT-PRE program, three of the participating teachers (50%) expressed a desire to leave their current position as an early childhood educator. This was not surprising as findings have shown that disruptive behaviors are one of the single greatest challenges teachers face in providing quality programming (Arnold et al., 1998). Further, repeated conflict and disciplinary problems with children who are disruptive (or difficult to manage) has been linked to increased emotional distress/exhaustion, occupational dissatisfaction, and "burnout" for teachers (Brownell & Smith, 1992; Cazares, 2009; Hastings & Bham, 2003; Morris-Rothschild & Brassard, 2006).

Overall, and contrary to secondary hypothesis #2, no significant differences were found between pre- and post-treatment efficacy or job satisfaction scores for the five teachers that completed the TCIT program. Although not significant, teachers in both counties reported increased efficacy over time, with teachers in County A reporting more improvements. All three teachers in County A, and Teacher #2 in County B, also reported increased job satisfaction post-treatment. Only Teacher #3 in County B reported decreased job satisfaction. During the course of the TCIT-PRE program, one of the participating teachers who initially expressed dissatisfaction was removed from their

position due to interpersonal problems with other teachers (and members of the administration). However, the other two teachers reported changes in satisfaction during the TCIT-PRE program (e.g., “I have a much better feeling about everything than I did before”) and remain in their position today (one year later).

It is important to note that the efficacy and satisfaction assessments used in this study may have lacked the sensitivity to capture expected changes from the intervention. For instance, the job satisfaction questionnaire contained several items related to interpersonal relationships with colleagues and feelings about management (e.g., “I trust our leadership team,” “I have good friends at work,” “I am fairly compensated for the work I do”) rather than addressing satisfaction gained from changes in teacher-child relationships. In a similar manner, many items on the efficacy scale assessed broad concepts (e.g., “The influences of a child’s home experiences can be overcome by good teaching,” “Some children need to be placed in slower groups so they are not subjected to unrealistic expectations”) as opposed to assessing each teacher’s confidence in addressing problematic situations. Future TCIT research efforts will likely benefit from the development of targeted assessments of efficacy and job satisfaction related to teacher-child interactions.

### **Overall Evaluation of the TCIT-PRE Program**

At the completion of the study, each teacher completed a 37-item, teacher-report evaluation which was administered by a graduate student who did not directly participate in the program. Overall, teachers reported favorable results (i.e., agree or strongly agree) on nearly every item on the post-treatment evaluation. For instance, teachers indicated

that the format of the TCIT-PRE program and teacher expectations in the program were clearly explained at the beginning of the program. Results suggest that teachers enjoyed both the length of the seven- to eight-week program, and that two sessions per week was appropriate for learning the skills. Teachers enjoyed the live feedback provided during coaching sessions, as well as the role-plays in the teaching sessions. Teachers also indicated that TCIT-PRE coaches were: knowledgeable about all aspects of the TCIT-PRE program, well prepared for each session, able to answer questions, and able to problem-solve strategies to address challenging behaviors in the classroom. On summary items, teachers reported that the TCIT-PRE program was a valuable learning experience and beneficial to their professional growth. Moreover, teachers indicated that they would: continue to use the skills they learned, be willing to complete additional TCIT-PRE training in the future, and recommend the TCIT-PRE program to other child development centers.

During the post-treatment evaluation, teachers did express concerns about the in-classroom coaching experience. While teachers described classroom coaching as helpful, most teachers reported problems with the technology used in the study (i.e., two-way radios). The radios had several problems (e.g., lost signal, headset that frequently fell off) which made classroom coaching challenging. Future TCIT-PRE studies will utilize more advanced technology to conduct classroom coaching.

### **Limitations and Future Directions**

Although this study has a number of strengths including a multi-method and multi-informant assessment approach, it also has several limitations. First, due to limited

resources (e.g., limited number of available TCIT coaches, distance between locations, and time constraints) the TCIT-PRE program could only be delivered to six teachers. As stated earlier, study results were further limited after one teacher was placed on “indefinite leave” (which occurred after the CDI phase had been completed). Future research with more teachers will be necessary to expand our understanding of the relationship between TCIT-PRE skills and social and behavioral competence. Secondly, although assistant teachers were regularly observed during the intervention, assistant teachers did not complete pre- and post-treatment measures on each child. Future research projects will benefit from the inclusion of all teachers to provide more comprehensive and convincing evidence of changes in social and behavioral competence. Finally, while this study begins to provide evidence for generalization from the classroom to the home environment, a limited number of caregivers completed both the pre- and post-treatment assessments. Future studies may benefit from additional efforts (e.g., scheduling appointments with parents in their homes) to reduce commonly reported barriers for limited resource populations (e.g., limited time, transportation difficulties).

## **Conclusions**

Limitations notwithstanding, this study provides preliminary support for a short-term, empirically-based, early intervention program for preschool children. The TCIT-PRE program provides teachers with individualized training in specialized skills that are easily acquired in the training room and generalize to the classroom. The TCIT-PRE program is a classroom-wide intervention that demonstrated improvements in social and behavioral competence. These positive changes in child behaviors were both observable and reported by teachers (and caregivers). The program was delivered during regular

classroom hours so that teacher-child relationships could be observed and teacher interactions with children could be coached. Overall, the program was well received by Head Start teachers and administration.



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Appendix A  
Interobserver Results



Table A-1  
*Inter-Observer Reliability of Live Coding of the DPICS-III Categories in  
 Classroom and Outdoor Situations (N = 50 Observations)*

<b>Behaviors</b>	<b>Pearson Correlation</b>	<b>Intraclass Correlation</b>
<b>Negative Talk (NTA)</b>	<b>.88<sup>***</sup></b>	<b>.93</b>
<b>Direct Command (DC)</b>		
Followed by Compliance	<b>.94<sup>***</sup></b>	<b>.97</b>
Followed by Noncompliance	<b>.86<sup>***</sup></b>	<b>.92</b>
Followed by No Opportunity to Comply	<b>.64<sup>***</sup></b>	<b>.78</b>
<b>Indirect Command (IC)</b>		
Followed by Compliance	<b>.85<sup>***</sup></b>	<b>.92</b>
Followed by Noncompliance	<b>.19</b>	<b>.25</b>
Followed by No Opportunity to Comply	<b>.34<sup>*</sup></b>	<b>.49</b>
<b>Information Question (IQ)</b>	<b>.88<sup>***</sup></b>	<b>.93</b>
<b>Descriptive Question (DQ)</b>	<b>.89<sup>***</sup></b>	<b>.94</b>
<b>Labeled Praise (LP)</b>	<b>.81<sup>***</sup></b>	<b>.90</b>
<b>Unlabeled Praise (UP)</b>	<b>.84<sup>***</sup></b>	<b>.91</b>
<b>Reflections (RF)</b>	<b>.68<sup>***</sup></b>	<b>.80</b>
<b>Behavior Descriptions (BD)</b>	<b>.23</b>	<b>.28</b>
<b>Neutral Talk (TA)</b>	<b>.91<sup>***</sup></b>	<b>.95</b>

\* $p = .05$ ; \*\*\* $p < .001$ .

Table A-2

*Inter-Observer Reliability of Live Coding of the BOPS Categories in Classroom and Outdoor Situations (N=67 Observations)*

Category	Pearson Correlation	Intraclass Correlation
<b><u>Cooperation with Adults</u></b>		
Interacting with Adults	.93**	.93
Follows Instructions from Adult	.78**	.87
Continued Compliance	.89**	.94
Passive Participation	.89**	.94
Active Participation	.88**	.93
Talks to Adults Appropriately	.94**	.97
Shares with Adults	.50**	.66
Invites Adults to Play	.74**	.75
<b><u>Peer Interaction</u></b>		
Actively Playing with Peers	.90**	.95
Talks to Peers	.89**	.94
Shares with Peers	.55**	.70
Waits Their Turn	.92**	.96
Imitation of Peers	.61**	.74
Solves Problems with Peers	.12	.21
<b><u>Independent &amp; Self-Regulating Behaviors</u></b>		
Task of Daily Living	.96**	.98
Independent Observation	.67**	.79
Independent Activities	.92**	.96
Smiles or Laughs	.75**	.85
Apologizes for Behavior	.70**	.80
Cries	.99**	.99
<b><u>Challenging Behaviors</u></b>		
Defiance	.73**	.43
Noncompliance	.34**	.47
Completes Consequences	.55**	.61
Disrupts Established Activities	.54**	.70
Makes Disruptive Noises	.99**	.99
Non-Directed Aggressive Behavior	.70**	.80
Aggression Toward Peer - Verbal	.95**	.98
Aggression Toward Peer - Physical	.87**	.91
Aggression Toward Adult - Physical	.70**	.80
Ignores Activities	.33**	.45

\* $p = .05$ ; \*\* $p < .01$ . *Note:* The table does not include the five behaviors that did not occur during the interobserver sessions.

## Appendix B

### Teacher Observations – Training Room

Figure B-1: Acquisition of Labeled Praise with an Individual Child in County A

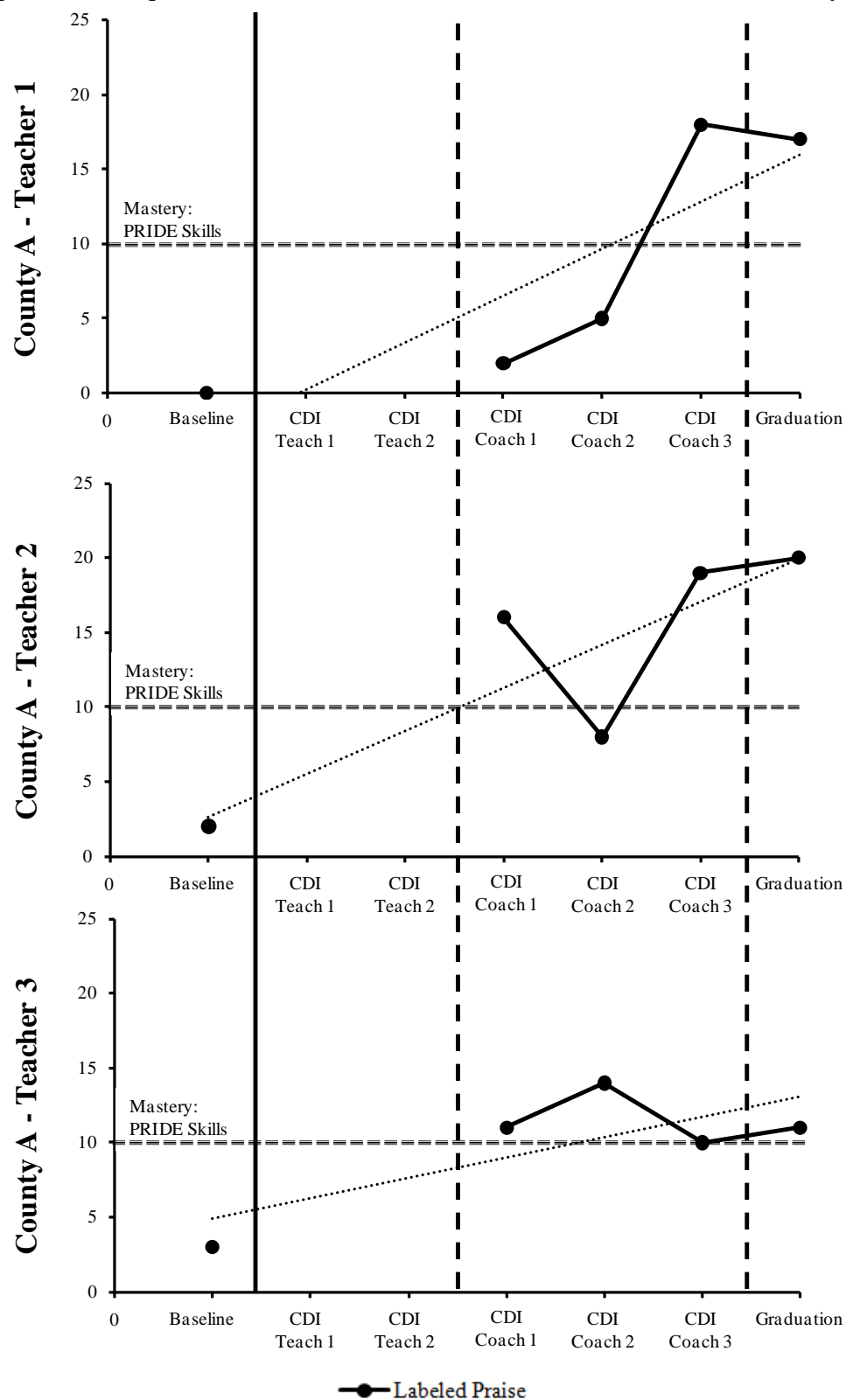


Figure B-2: Acquisition of Reflections with an Individual Child in County A

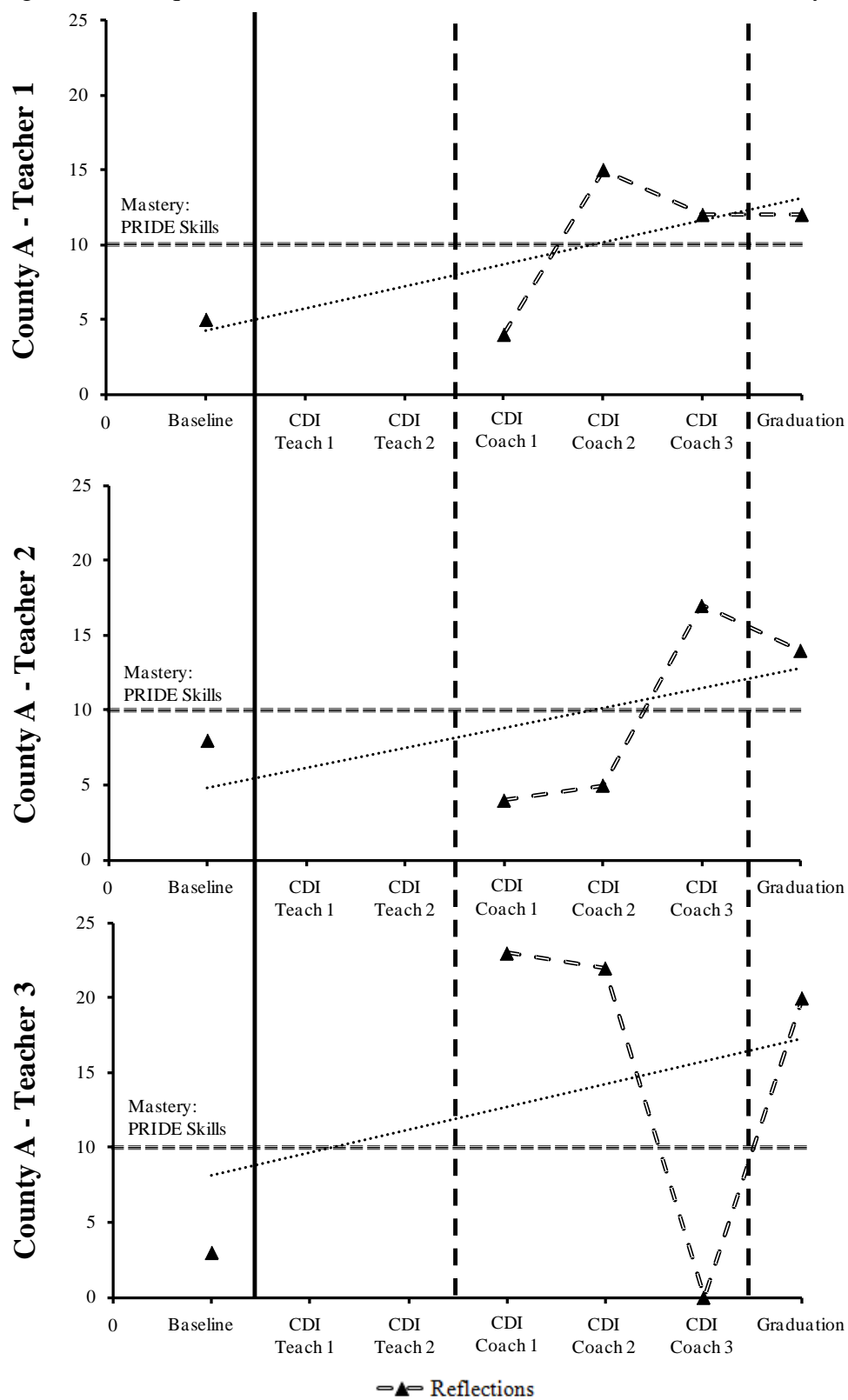


Figure B-3: Acquisition of Behavior Descriptions with an Individual Child in County A

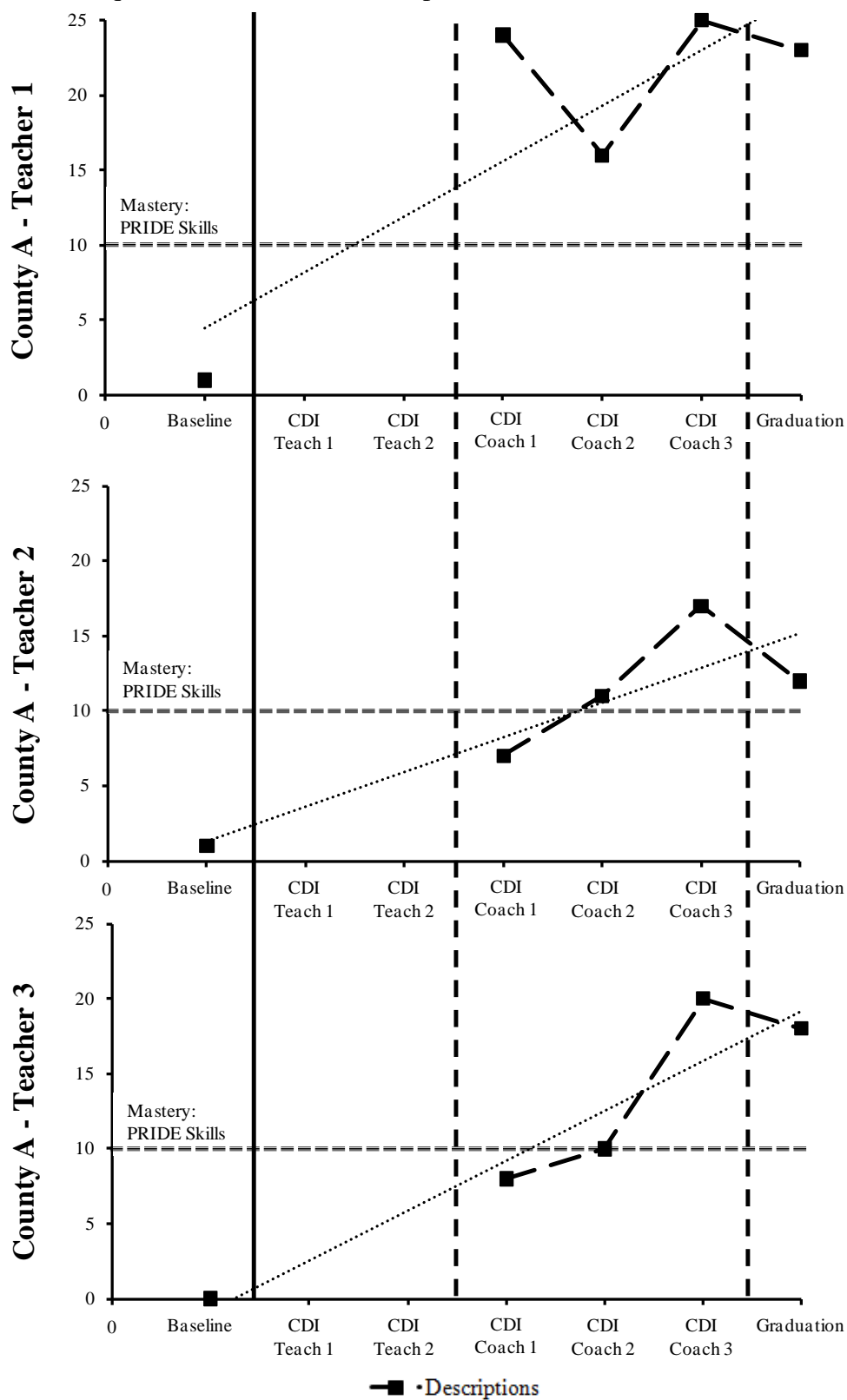


Figure B-4: Acquisition of Labeled Praise with an Individual Child in County B

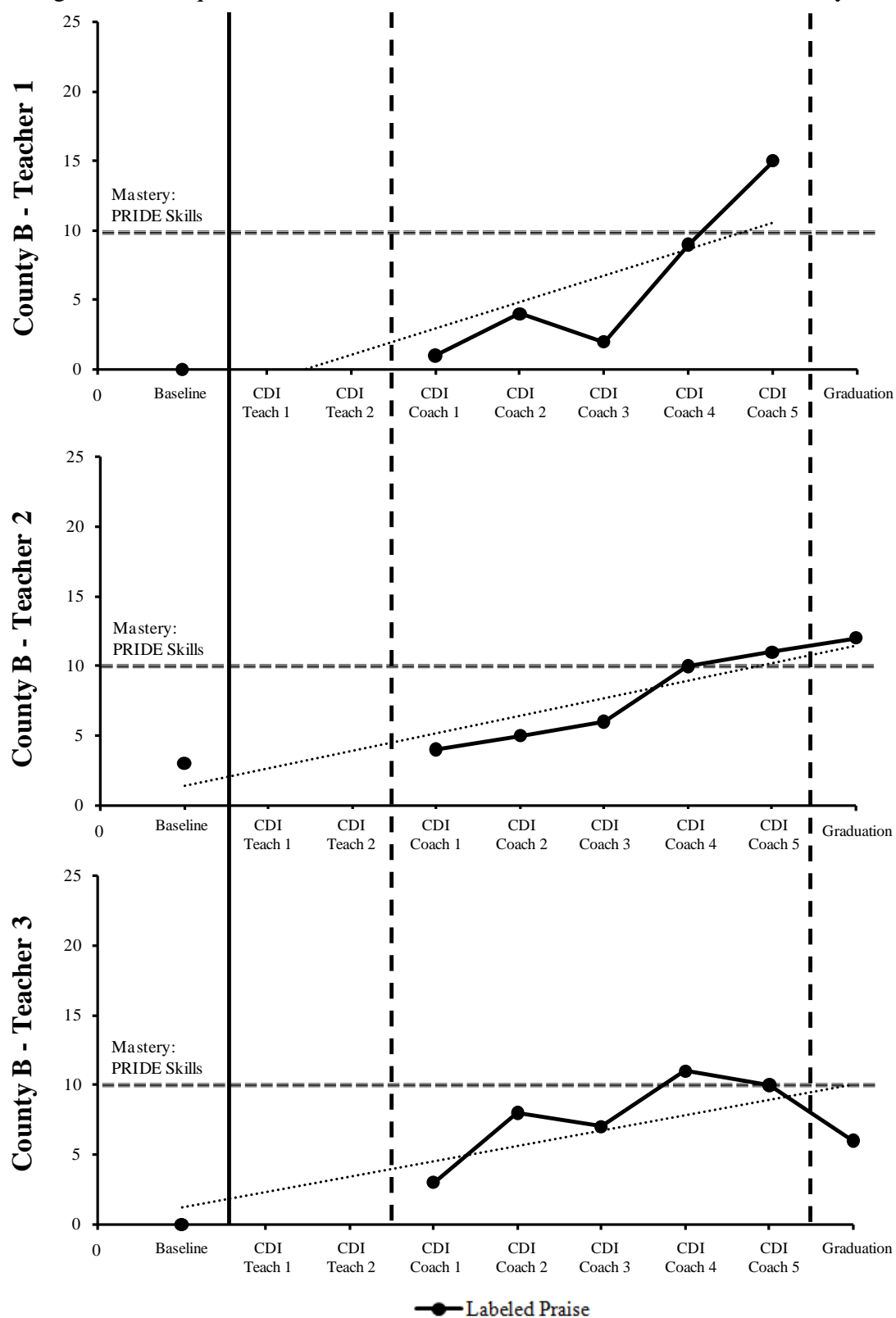


Figure B-5: Acquisition of Reflections with an Individual Child in County B

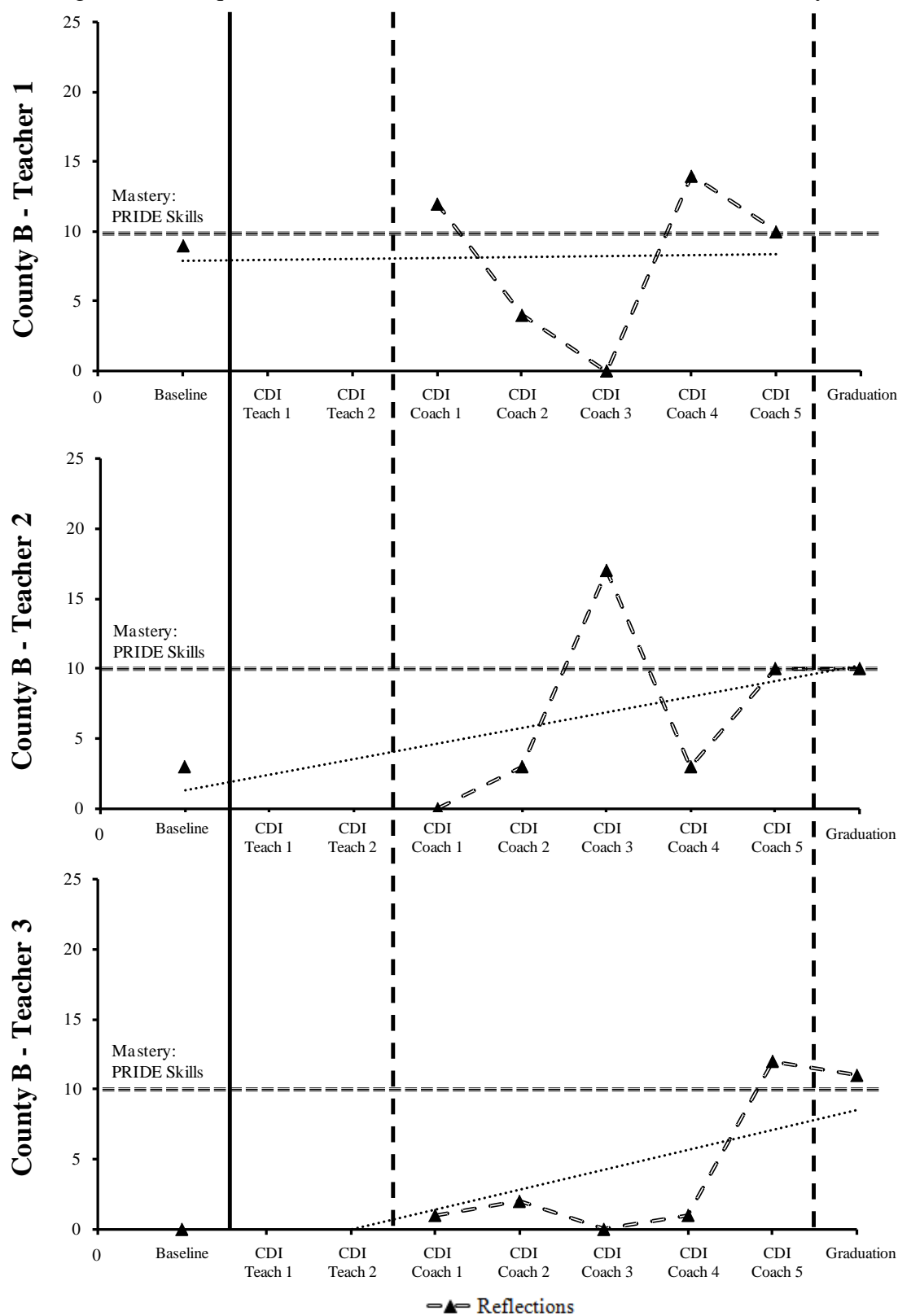




Figure B-6: Acquisition of Behavior Descriptions with an Individual Child in County B

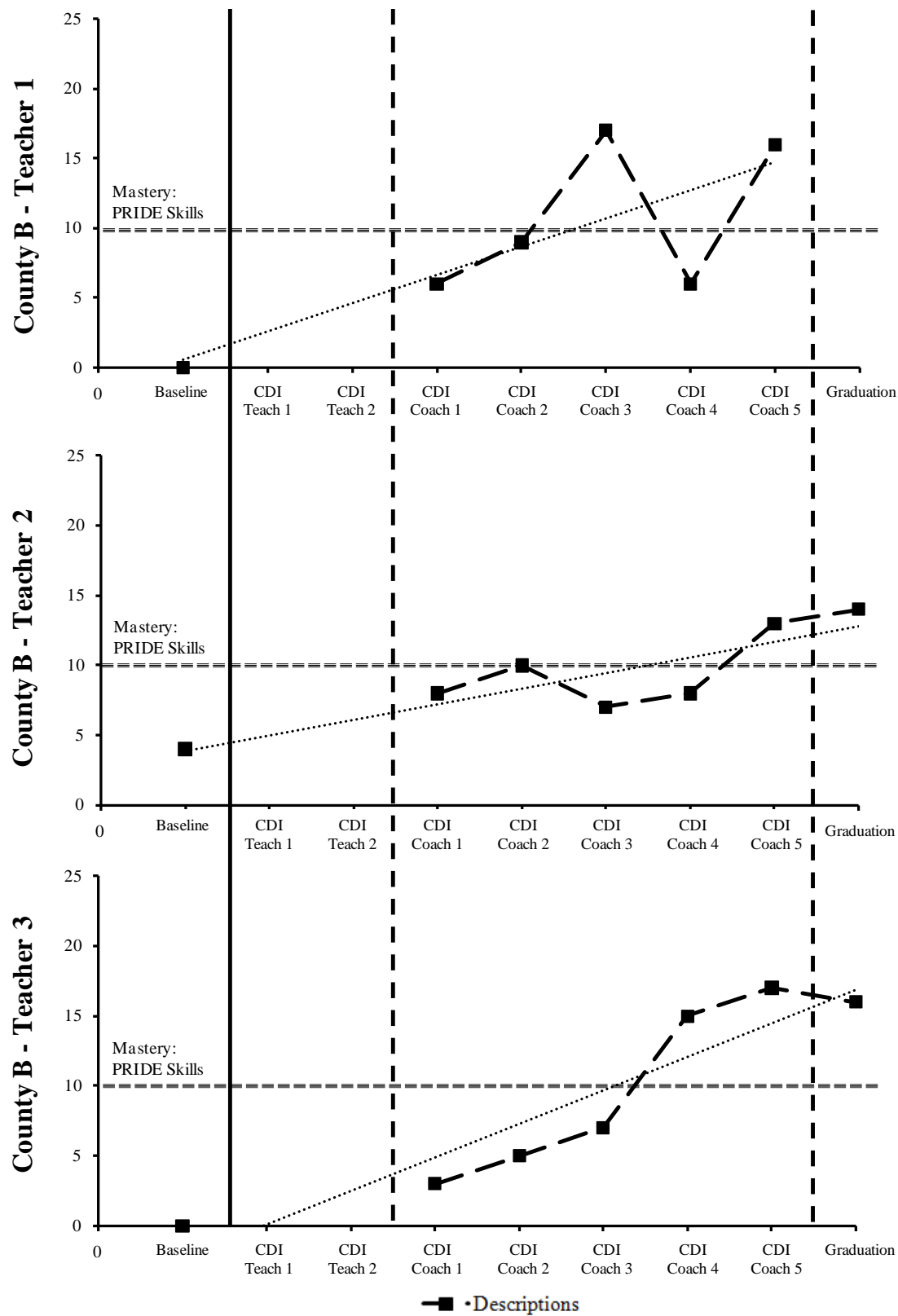


Figure B-7: Acquisition of Labeled Praise with Pairs of Children in County A

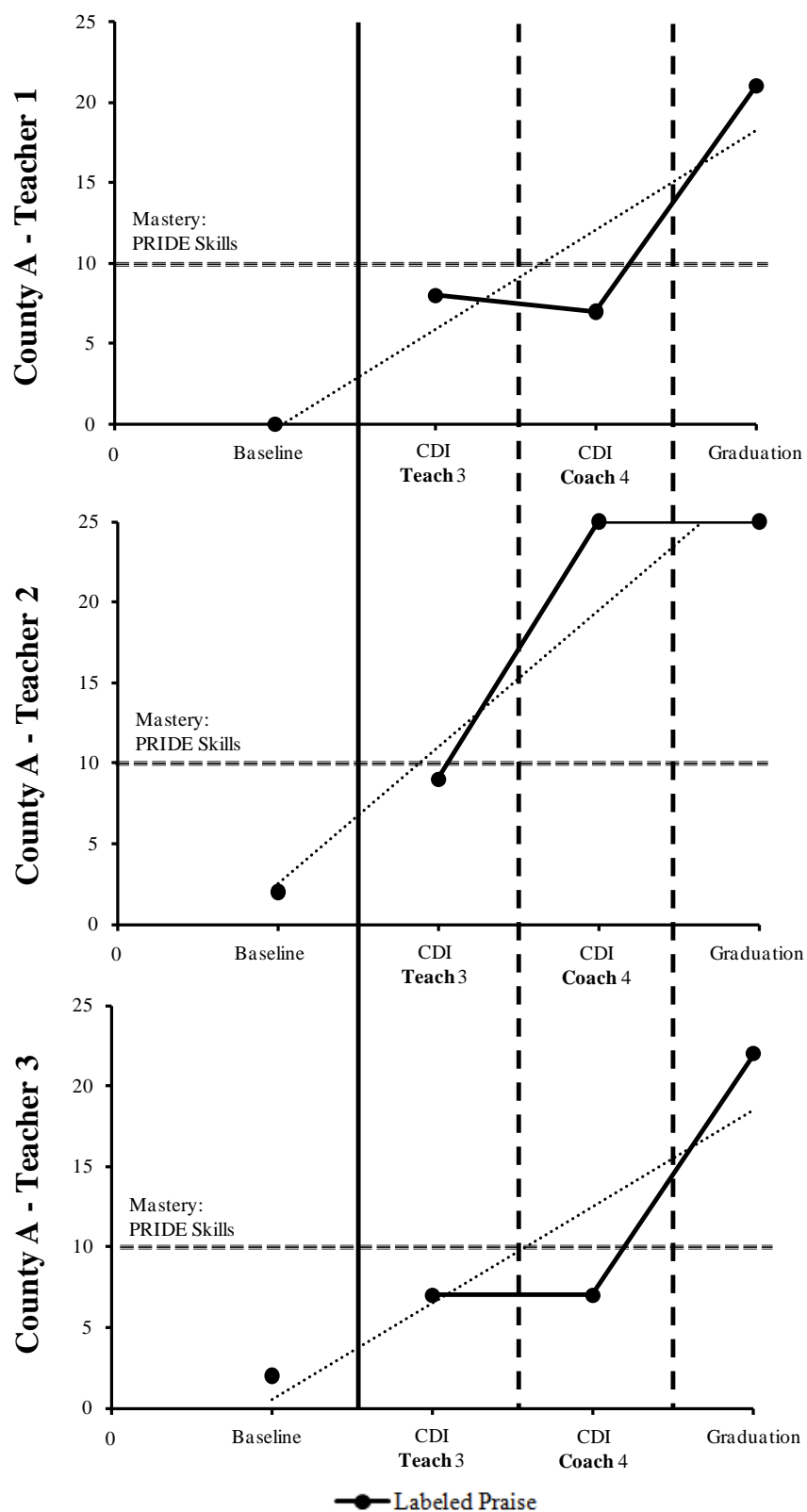


Figure B-8: Acquisition of Reflections with Pairs of Children in County A

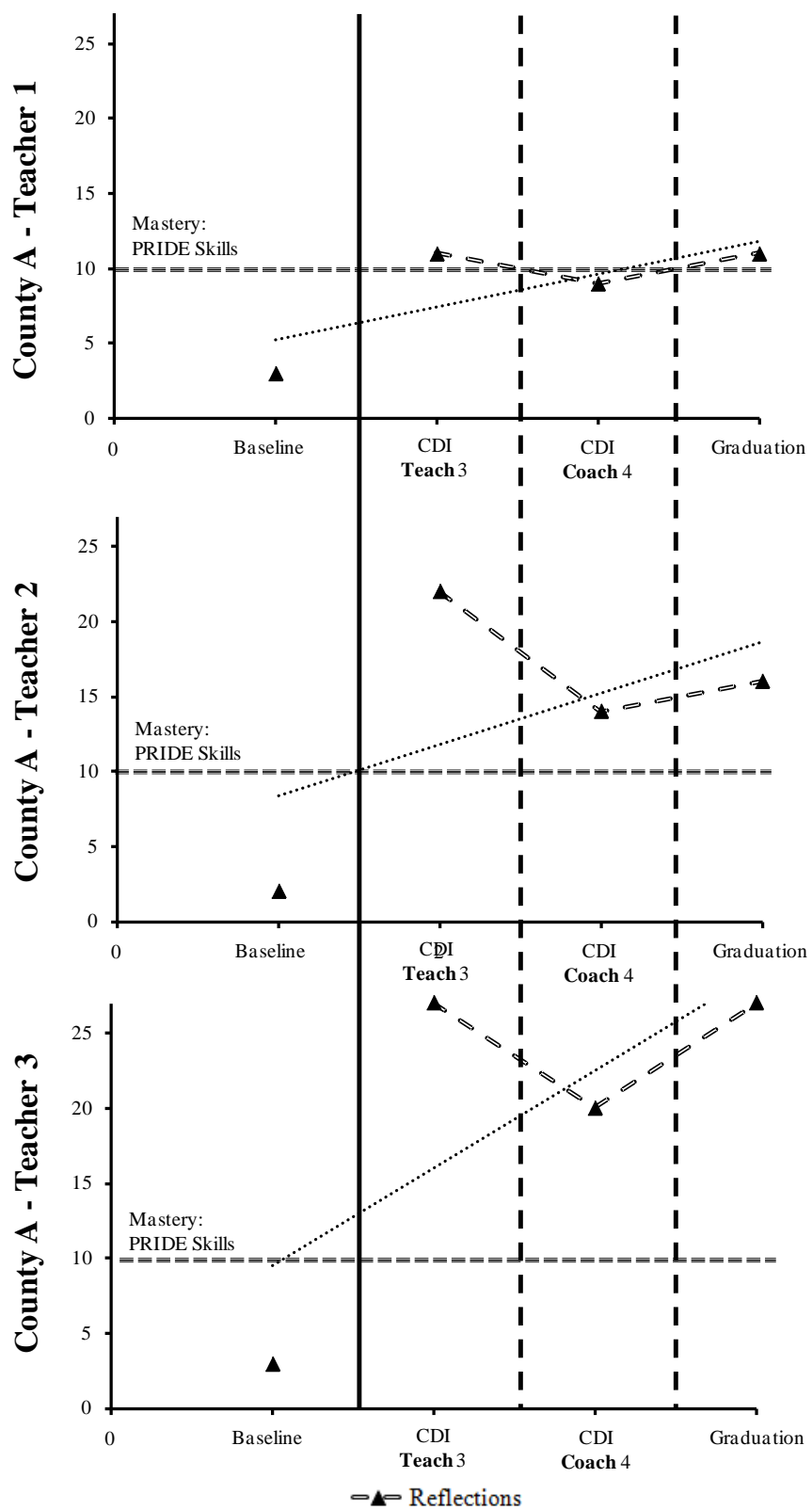


Figure B-9: Acquisition of Behavior Descriptions with Pairs of Children in County A

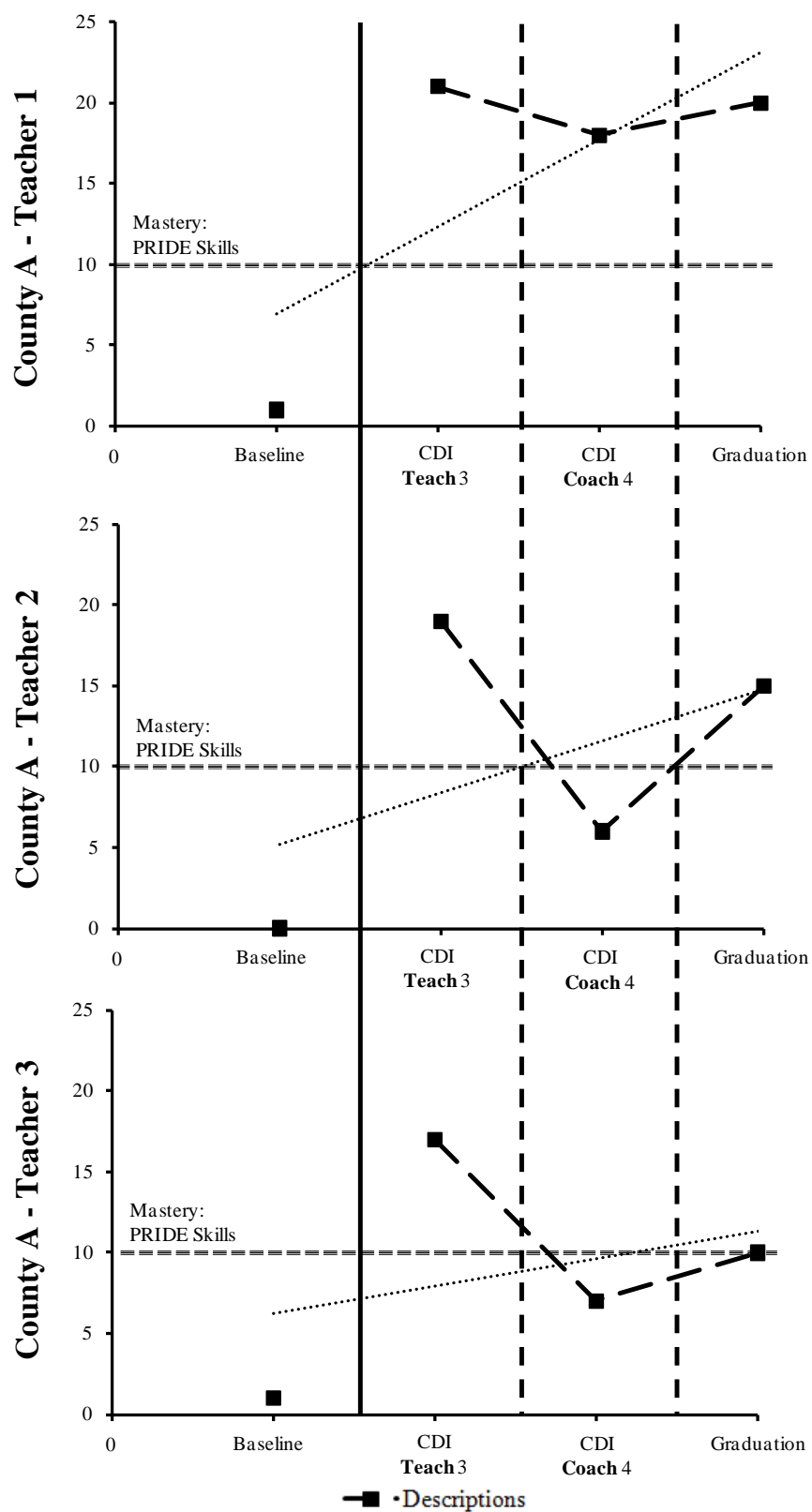


Figure B-10: Acquisition of Labeled Praise with Pairs of Children in County B

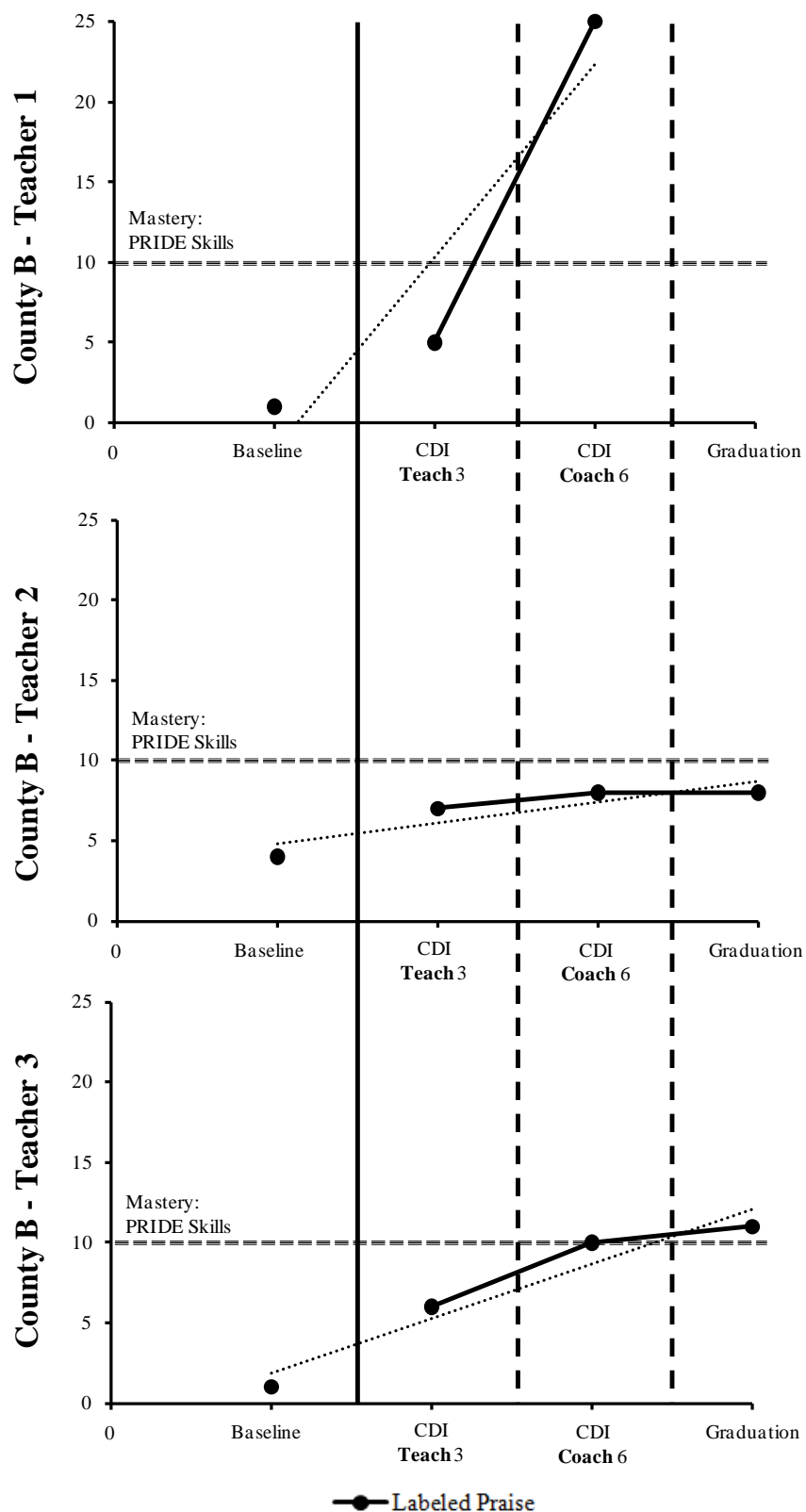


Figure B-11: Acquisition of Reflections with Pairs of Children in County B

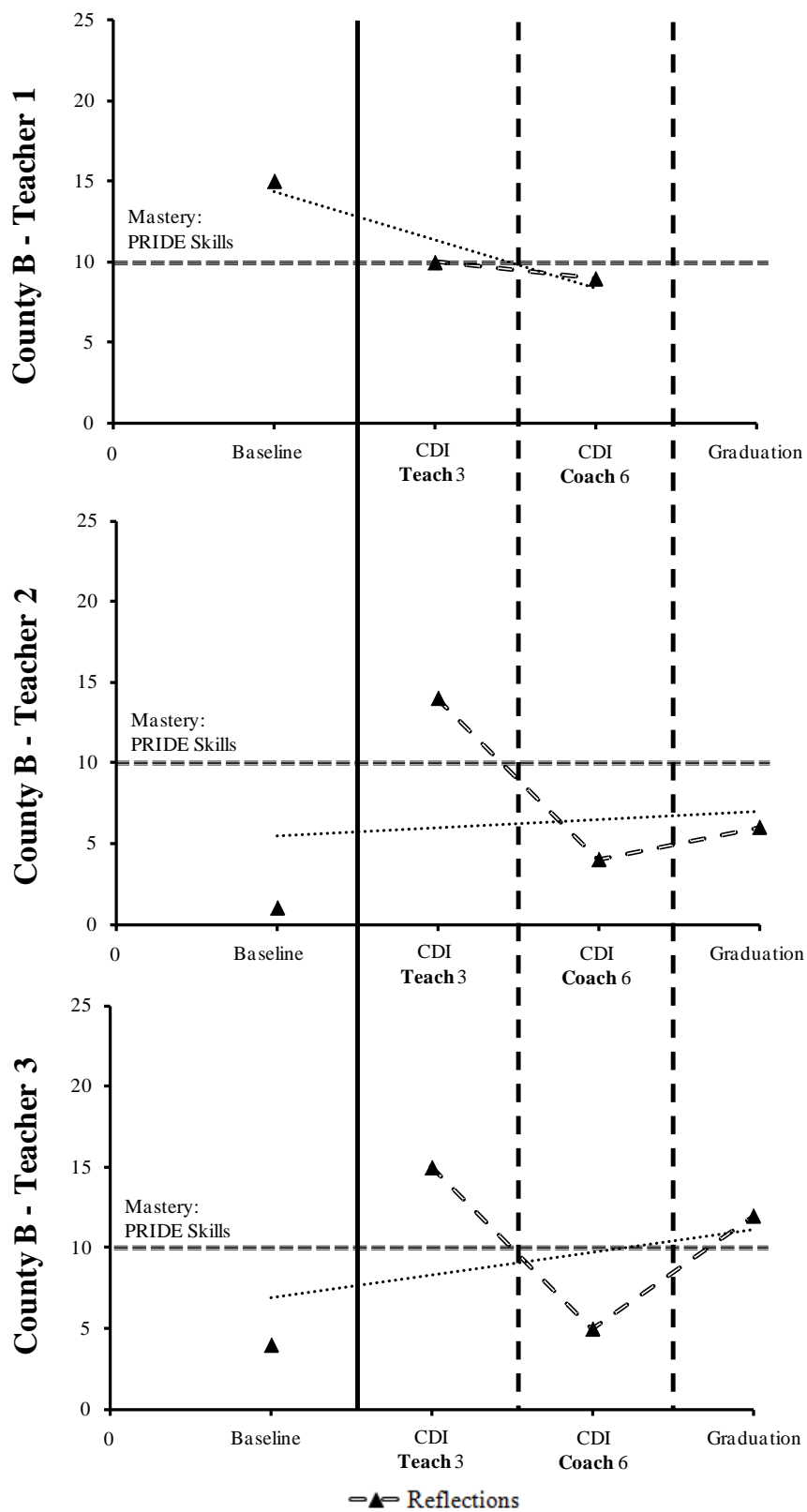


Figure B-12: Acquisition of Behavior Descriptions with Pairs of Children in County B

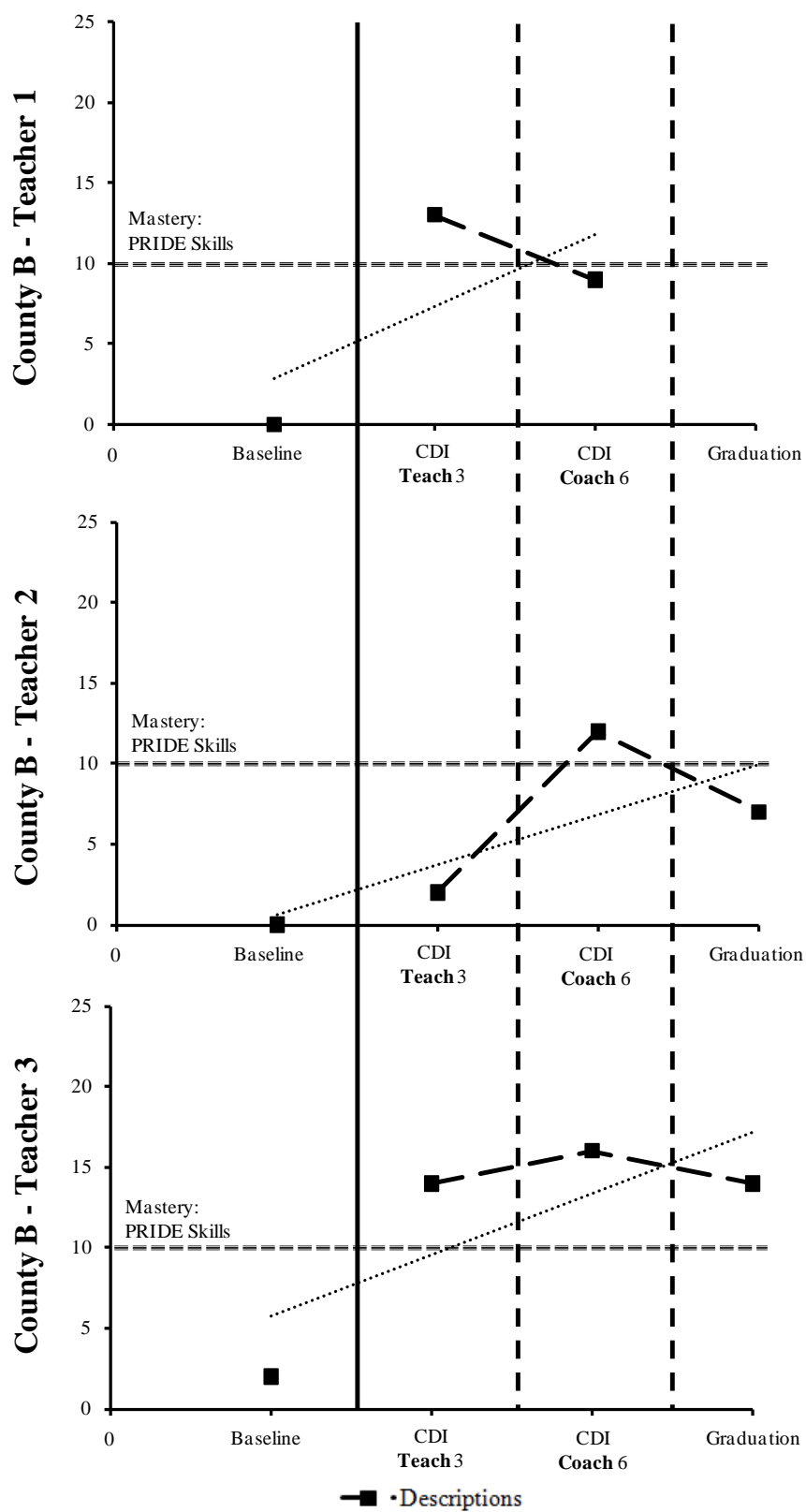


Figure B-13: Acquisition of Labeled Praise with Three Children in County A

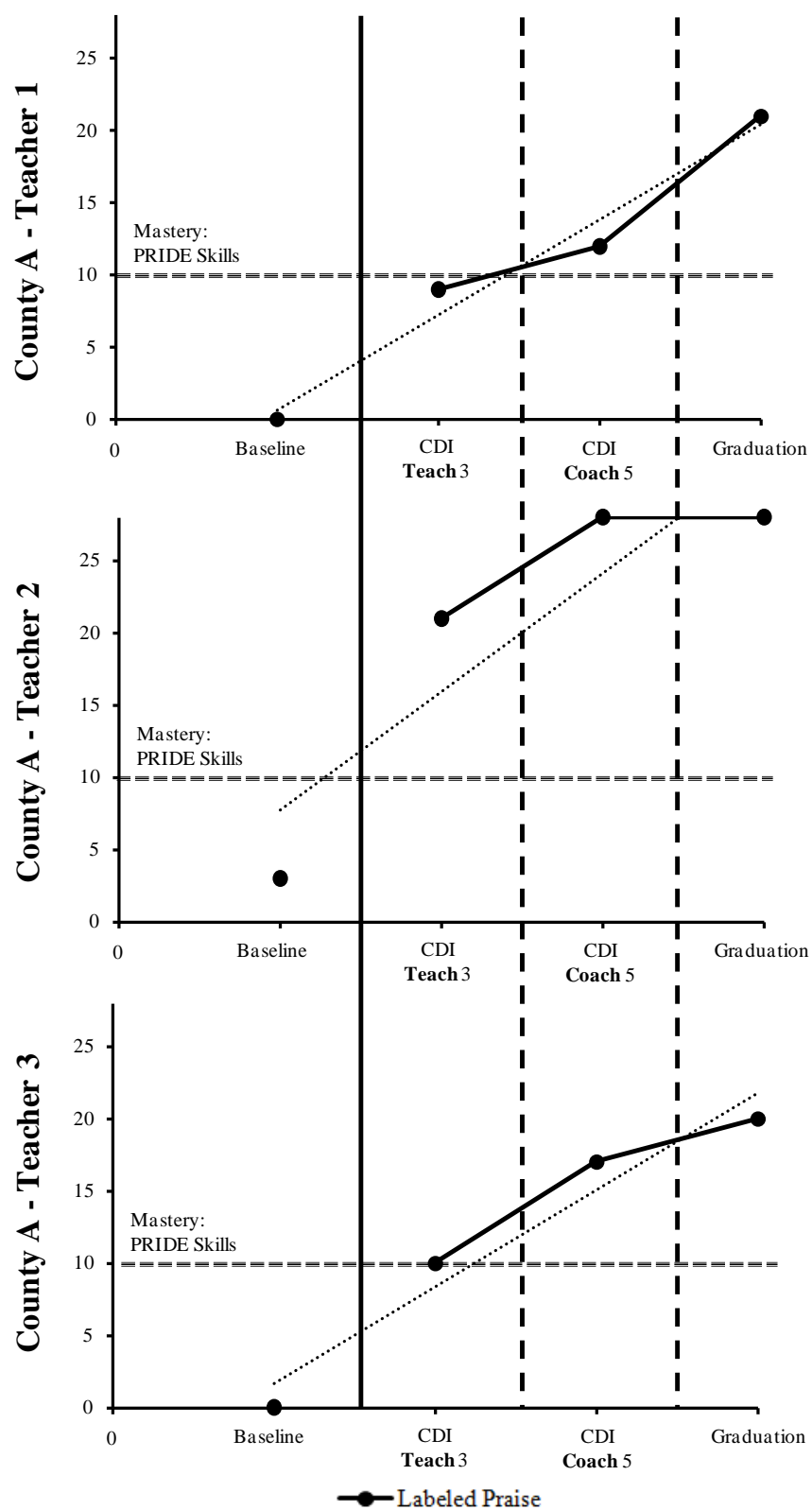




Figure B-14: Acquisition of Reflections with Three Children in County A

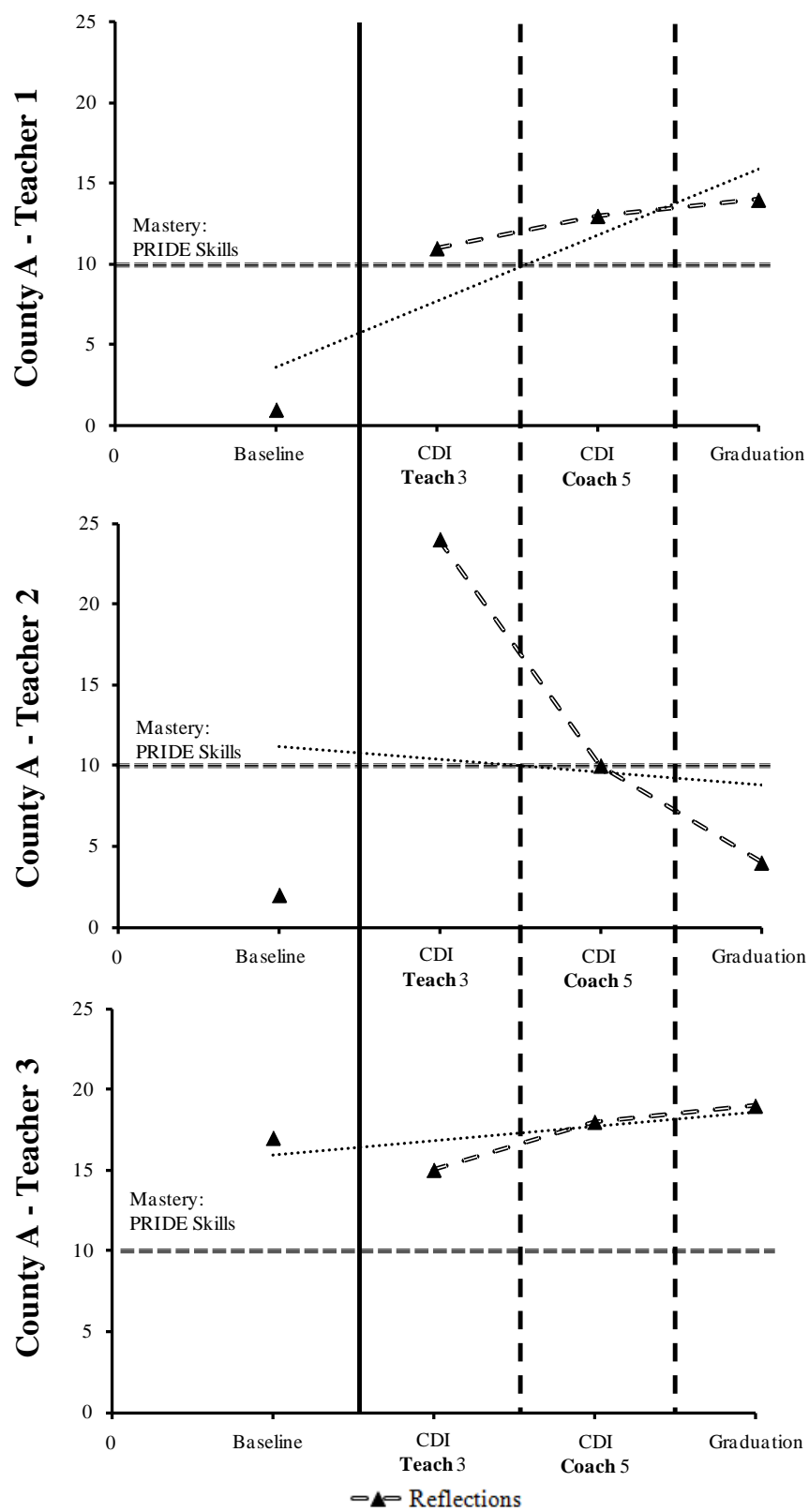


Figure B-15: Acquisition of Behavior Descriptions with Three Children in County A

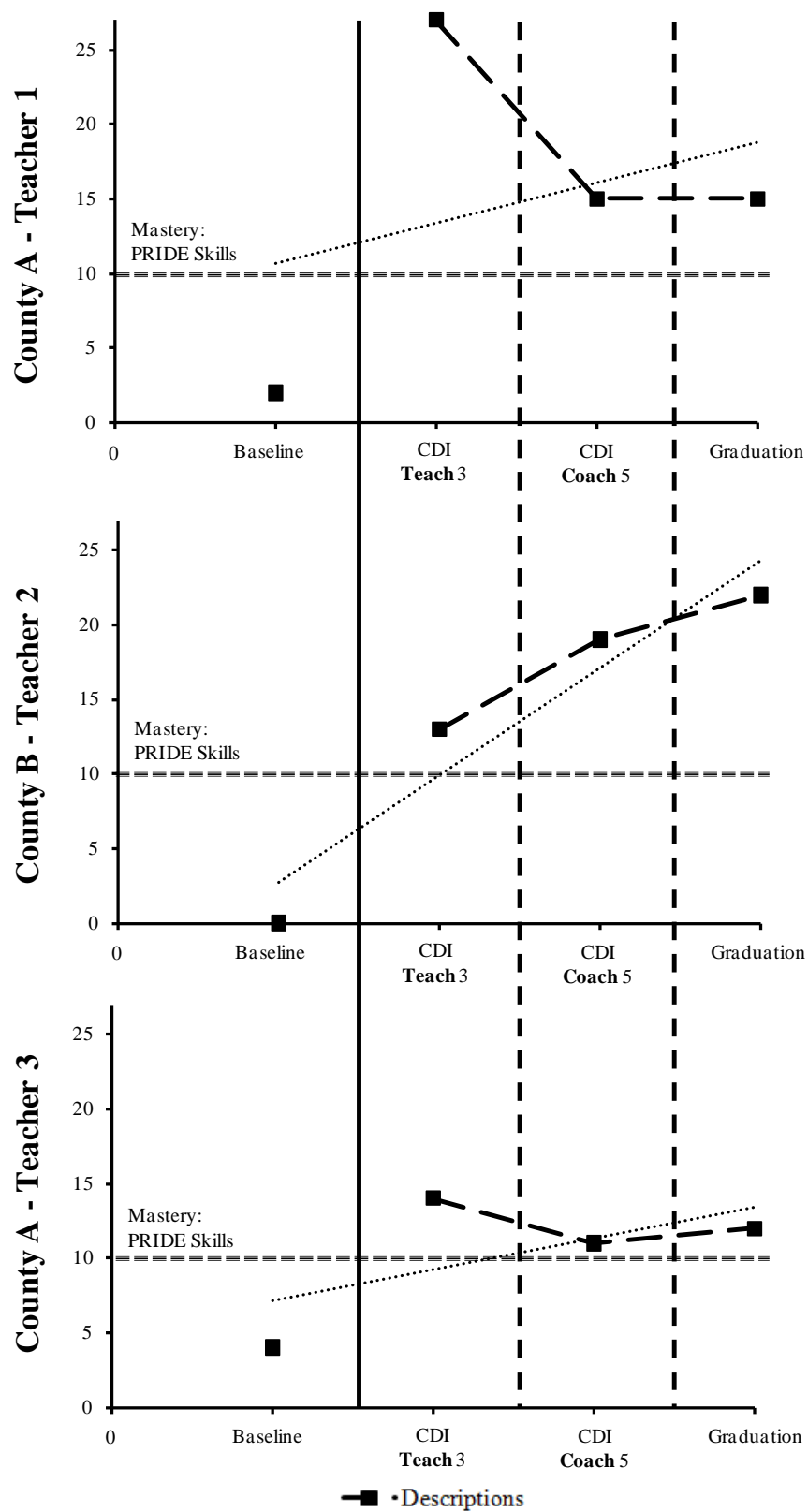


Figure B-16: Acquisition of Labeled Praise with Three Children in County B

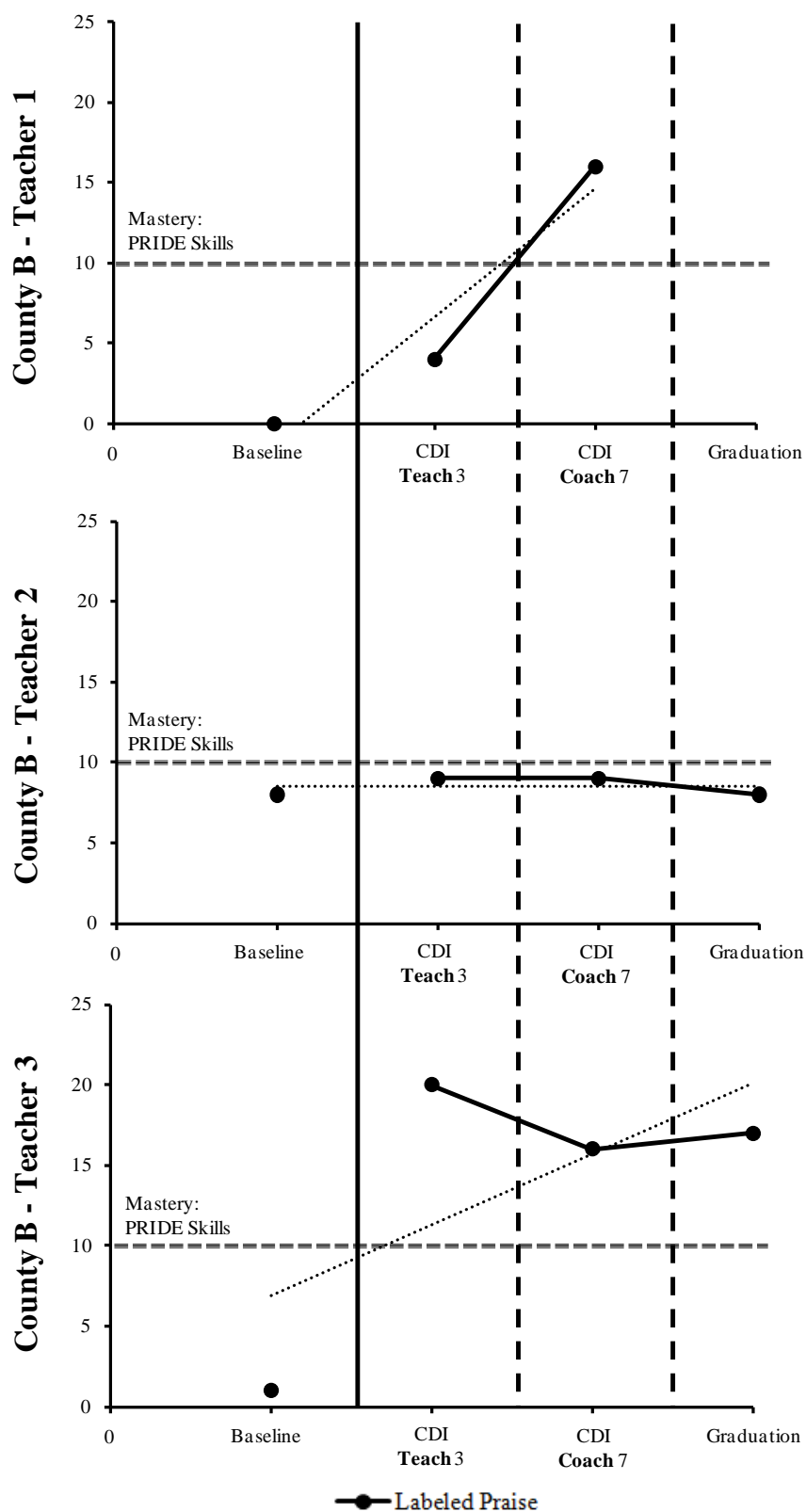


Figure B-17: Acquisition of Reflections with Three Children in County B

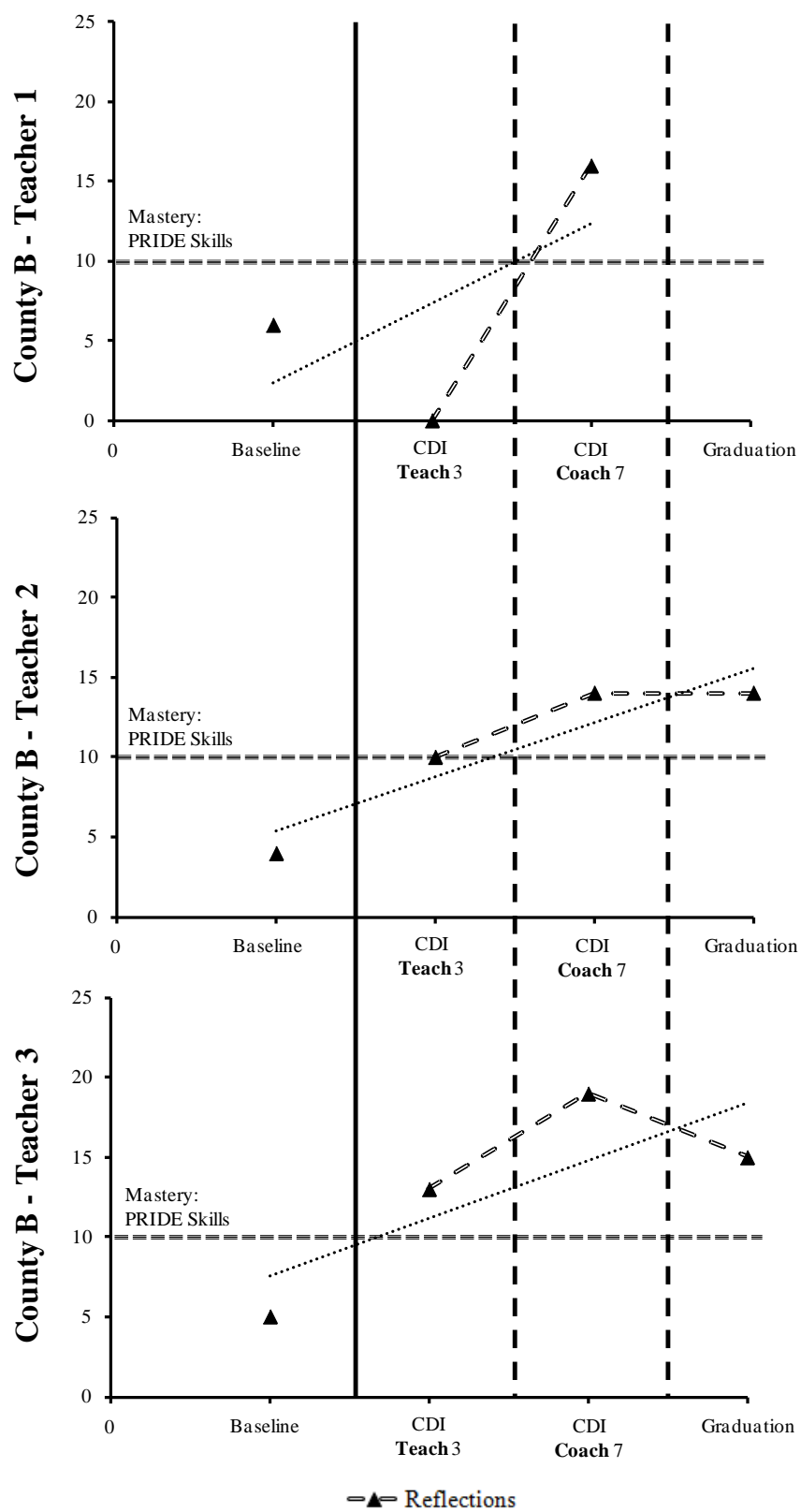
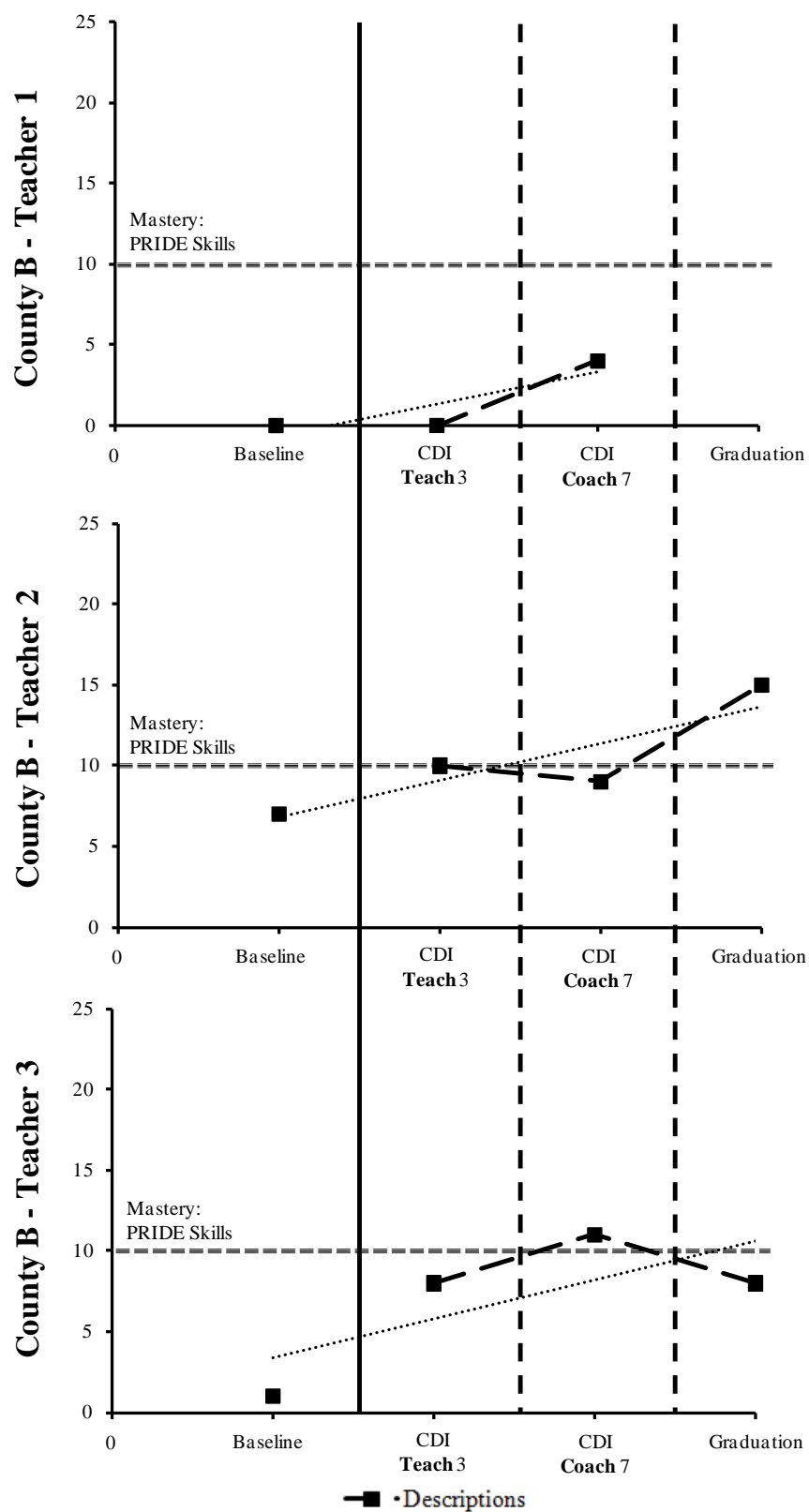


Figure B-18: Acquisition of Behavior Descriptions with Three Children in County A



## Appendix C

## Teacher-Report on Child Functioning

Table C-1

*Overall Pre- and Post-Treatment Differences on the CBCL-TRF for the Lowest Quartile (n = 19)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	36.26	3.51	36.89	3.99	0.40
<b>Externalizing</b>	39.53	3.08	41.11	5.09	2.22
<b>Total Problems</b>	35.63	3.50	35.95	5.55	0.71

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment *T*-Scores on the CBCL Total Problems Scale. The lowest quartile of children had *T*-Scores of 40 or less at pre-treatment.

Table C-2

*Overall Pre- and Post-Treatment Differences on the CBCL-TRF for the Middle Quartiles (n = 32)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	46.44	8.08	45.50	8.41	0.99
<b>Externalizing</b>	50.44	6.40	47.66	6.85	6.65**
<b>Total Problems</b>	49.78	4.25	46.56	6.91	10.35**

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment *T*-Scores on the CBCL Total Problems Scale. The middle quartiles of children had *T*-Scores between 41 and 56 at pre-treatment.

Table C-3

*Overall Pre- and Post-Treatment Differences on the CBCL-TRF for the Highest Quartile (n = 19)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	55.89	5.48	51.84	8.63	7.66**
<b>Externalizing</b>	62.63	5.54	60.53	5.34	3.91 <sup>+</sup>
<b>Total Problems</b>	61.16	3.45	58.63	5.68	6.30*

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment *T*-Scores on the CBCL Total Problems Scale. The highest quartile of children had *T*-Scores of 57 and above at pre-treatment.

Table C-4

*Pre- and Post-Treatment Differences on the CBCL-TRF for the Lowest Quartile in County A (n = 12)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	35.08	2.54	35.42	3.37	0.11
<b>Externalizing</b>	40.33	3.53	41.42	5.27	0.57
<b>Total Problems</b>	35.17	2.98	35.17	5.80	0.00

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
*Note.* Quartiles were determined using pre-treatment *T*-Scores on the CBCL Total Problems Scale. The lowest quartile of children had *T*-Scores of 38 or less at pre-treatment.

Table C-5

*Pre- and Post-Treatment Differences on the CBCL-TRF for the Middle Quartiles in County A (n = 20)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	45.42	7.17	42.53	6.36	7.97**
<b>Externalizing</b>	49.11	6.88	46.16	6.05	8.56**
<b>Total Problems</b>	48.11	4.67	43.74	5.40	22.63***

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
*Note.* Quartiles were determined using pre-treatment *T*-Scores on the CBCL Total Problems Scale. The middle quartiles of children had *T*-Scores between 39 and 56 at pre-treatment.

Table C-6

*Pre- and Post-Treatment Differences on the CBCL-TRF for the Highest Quartile in County A (n = 10)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	56.20	5.16	50.30	9.73	5.77*
<b>Externalizing</b>	63.00	5.58	59.00	5.74	6.73*
<b>Total Problems</b>	60.70	3.74	56.80	6.78	5.25*

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
*Note.* Quartiles were determined using pre-treatment *T*-Scores on the CBCL Total Problems Scale. The lowest quartile of children had *T*-Scores of 57 and above at pre-treatment.



Table C-7

*Pre- and Post-Treatment Differences on the CBCL-TRF for the Lowest Quartile in County B (n = 7)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	37.29	4.27	38.43	4.28	0.27
<b>Externalizing</b>	40.14	5.43	40.57	5.16	0.02
<b>Total Problems</b>	37.00	5.13	37.00	5.13	0.00

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
*Note.* Quartiles were determined using pre-treatment *T*-Scores on the CBCL Total Problems Scale. The lowest quartile of children had *T*-Scores of 45 or less at pre-treatment.

Table C-8

*Pre- and Post-Treatment Differences on the CBCL-TRF for the Middle Quartiles in County B (n = 15)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	49.80	8.93	51.13	8.21	1.00
<b>Externalizing</b>	51.80	6.45	50.73	7.40	0.34
<b>Total Problems</b>	52.73	3.62	51.67	6.57	0.38

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
*Note.* Quartiles were determined using pre-treatment *T*-Scores on the CBCL Total Problems Scale. The middle quartiles of children had *T*-Scores between 46 and 59 at pre-treatment.

Table C-9

*Pre- and Post-Treatment Differences on the CBCL-TRF for the Highest Quartile in County B (n = 7)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	54.71	6.26	52.86	8.21	1.28
<b>Externalizing</b>	64.29	4.15	63.86	3.72	0.11
<b>Total Problems</b>	62.71	2.81	61.71	3.20	0.96

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
*Note.* Quartiles were determined using pre-treatment *T*-Scores on the CBCL Total Problems Scale. The lowest quartile of children had *T*-Scores of 60 and above at pre-treatment.

Table C-10

*Pre- and Post-Treatment Differences on the CBCL-TRF for Coach #1 (n = 27)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	47.96	9.17	45.04	8.55	6.85**
<b>Externalizing</b>	50.44	9.89	48.89	9.38	3.26 <sup>+</sup>
<b>Total Problems</b>	49.19	10.05	46.41	10.29	9.70**

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table C-11

*Pre- and Post-Treatment Differences on the CBCL-TRF for Coach #2 (n = 30)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	40.77	8.08	40.20	7.80	0.27
<b>Externalizing</b>	48.77	10.87	46.23	8.38	4.43*
<b>Total Problems</b>	45.37	10.03	42.80	8.96	5.08*

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table C-12

*Pre- and Post-Treatment Differences on the CBCL-TRF for Coach #3 (n = 13)*

CBCL Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Internalizing</b>	55.31	5.17	55.38	4.13	0.01
<b>Externalizing</b>	56.15	7.07	57.62	7.53	1.39
<b>Total Problems</b>	57.15	5.89	57.69	5.84	0.26

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table C-13

*Overall Pre- and Post-Treatment Differences on the SESBI-R for the Lowest Quartile (n = 21)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	47.10	8.01	44.76	7.49	1.75
Intensity T-Score	40.71	1.62	40.29	1.42	1.45
Problem Raw Score	0.43	0.98	0.71	1.52	1.88
Problem T-Score	43.62	0.73	43.62	1.28	2.11

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment scores on the SESBI Intensity Scale. The lowest quartile of children had raw scores of 59 or less at pre-treatment.

Table C-14

*Overall Pre- and Post-Treatment Differences on the SESBI-R for the Middle Quartiles (n = 32)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	92.00	18.54	79.75	25.74	13.47***
Intensity T-Score	49.00	3.32	46.62	4.73	15.83***
Problem Raw Score	3.78	4.05	4.19	5.53	0.26
Problem T-Score	46.25	3.66	46.48	4.67	0.11

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment scores on the SESBI Intensity Scale. The middle quartiles of children had raw scores between 60 and less than 130 at pre-treatment.

Table C-15

*Overall Pre- and Post-Treatment Differences on the SESBI-R for the Highest Quartile (n = 18)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	154.17	20.07	130.94	30.38	10.58**
Intensity T-Score	60.17	3.57	55.89	5.58	10.95**
Problem Raw Score	13.53	6.42	7.67	5.31	23.34***
Problem T-Score	55.00	5.76	49.50	4.60	24.98***

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment scores on the SESBI Intensity Scale. The lowest quartile of children had raw scores of 131 and above at pre-treatment.

Table C-16

*Pre- and Post-Treatment Differences on the SESBI-R for the Lowest Quartile in County A (n = 11)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	48.73	8.24	42.82	7.48	8.63**
Intensity T-Score	41.00	1.67	39.82	1.40	7.82*
Problem Raw Score	0.73	1.27	1.18	1.94	1.79
Problem T-Score	43.55	0.93	44.00	1.61	2.12

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment scores on the SESBI Intensity Scale. The lowest quartile of children had raw scores of 59 or less at pre-treatment.

Table C-17

*Pre- and Post-Treatment Differences on the SESBI-R for the Middle Quartiles in County A (n = 21)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	94.14	20.15	77.86	27.81	26.27***
Intensity T-Score	49.38	3.67	46.24	5.15	30.38***
Problem Raw Score	3.62	4.19	2.05	2.69	5.01*
Problem T-Score	46.14	3.77	44.67	2.27	5.11*

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment scores on the SESBI Intensity Scale. The middle quartiles of children had raw scores between 60 and 131 at pre-treatment.

Table C-18

*Pre- and Post-Treatment Differences on the SESBI-R for the Highest Quartile in County A (n = 10)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	155.20	22.35	127.50	38.82	6.18*
Intensity T-Score	60.30	4.00	55.10	7.13	6.55*
Problem Raw Score	13.95	8.39	6.50	5.84	23.71***
Problem T-Score	55.40	7.46	48.50	5.01	23.75***

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment scores on the SESBI Intensity Scale. The lowest quartile of children had raw scores of 132 and above at pre-treatment.

Table C-19

*Pre- and Post-Treatment Differences on the SESBI-R for the Lowest Quartile in County B (n = 7)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	41.00	2.94	45.86	8.55	3.71 <sup>+</sup>
Intensity T-Score	39.57	0.79	40.57	1.51	4.20 <sup>+</sup>
Problem Raw Score	0.00	0.00	0.29	0.76	1.00
Problem T-Score	43.00	0.00	43.29	0.76	1.00

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment scores on the SESBI Intensity Scale. The lowest quartile of children had raw scores of 48 or less at pre-treatment.

Table C-20

*Pre- and Post-Treatment Differences on the SESBI-R for the Middle Quartiles in County B (n = 15)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	84.27	22.61	79.33	26.50	0.87
Intensity T-Score	47.60	4.01	46.67	4.75	1.00
Problem Raw Score	3.80	4.20	6.60	7.01	6.27*
Problem T-Score	46.27	3.81	48.57	5.90	5.94*

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment scores on the SESBI Intensity Scale. The middle quartiles of children had raw scores between 49 and 131 at pre-treatment.

Table C-21

*Pre- and Post-Treatment Differences on the SESBI-R for the Highest Quartile in County B (n = 7)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	156.00	17.21	136.71	17.06	4.10 <sup>+</sup>
Intensity T-Score	60.57	2.99	57.14	3.02	4.27 <sup>+</sup>
Problem Raw Score	13.29	3.50	9.29	4.86	3.69 <sup>+</sup>
Problem T-Score	54.71	3.09	50.86	4.29	4.30 <sup>+</sup>

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

*Note.* Quartiles were determined using pre-treatment scores on the SESBI Intensity Scale. The lowest quartile of children had raw scores of 132 and above at pre-treatment.

Table C-22

*Pre- and Post-Treatment Differences on the SESBI-R for Coach #1 (n = 28)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	99.11	36.89	87.79	38.91	16.03***
Intensity T-Score	50.21	6.70	48.00	7.10	19.04***
Problem Raw Score	3.50	4.53	1.96	3.00	10.94**
Problem T-Score	46.04	4.01	44.64	2.609	11.96**

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table C-23

*Pre- and Post-Treatment Differences on the SESBI-R for Coach #2 (n = 30)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	91.30	52.97	70.83	40.04	21.23***
Intensity T-Score	48.77	9.61	45.07	7.33	20.04***
Problem Raw Score	6.45	8.27	3.37	4.62	10.11**
Problem T-Score	48.67	7.41	45.83	3.97	9.62**

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table C-24

*Pre- and Post-Treatment Differences on the SESBI-R for Coach #3 (n = 13)*

SESBI-R Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intensity Raw Score	91.85	30.50	97.38	34.92	1.71
Intensity T-Score	49.00	5.49	49.85	6.28	1.30
Problem Raw Score	6.31	5.30	10.08	6.29	11.07**
Problem T-Score	48.54	4.81	51.50	5.24	8.73**

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table C-25

*Overall Pre- and Post-Treatment Differences on the SCBE for the Lowest Quartile (n = 17)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	37.65	3.53	40.76	6.21	6.61**
<b>Success with General Adaptation</b>	38.82	2.27	38.94	3.98	0.02

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
 Quartiles were determined using pre-treatment *T*-Scores on the SCBE General Adaptation Scale. The lowest quartile of children had *T*-Scores of 42 or less at pre-treatment.

Table C-26

*Overall Pre- and Post-Treatment Differences on the SCBE for the Middle Quartiles (n = 31)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	44.97	3.80	48.61	8.85	8.62**
<b>Success with General Adaptation</b>	46.87	2.80	49.23	7.61	4.49*

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
 Quartiles were determined using pre-treatment *T*-Scores on the SCBE General Adaptation Scale. The middle quartiles of children had *T*-Scores between 43 and 54 at pre-treatment.

Table C-27

*Overall Pre- and Post-Treatment Differences on the SCBE for the Highest Quartile (n = 19)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	57.21	3.26	60.00	9.54	1.33
<b>Success with General Adaptation</b>	59.68	3.15	61.79	8.40	1.19

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
 Quartiles were determined using pre-treatment *T*-Scores on the SCBE General Adaptation Scale. The highest quartile of children had *T*-Scores of 55 and above at pre-treatment.

Table C-28

*Pre- and Post-Treatment Differences on the SCBE for the Lowest Quartile in County A (n = 11)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	37.64	3.56	39.73	5.41	2.39
<b>Success with General Adaptation</b>	37.91	2.02	37.36	3.04	0.27

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Quartiles were determined using pre-treatment *T*-Scores on the SCBE General Adaptation Scale. The lowest quartile of children had *T*-Scores of 40 or less at pre-treatment.

Table C-29

*Pre- and Post-Treatment Differences on the SCBE for the Middle Quartiles in County A (n = 21)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	47.48	4.68	53.95	8.23	27.82***
<b>Success with General Adaptation</b>	47.62	4.47	53.10	8.89	19.16***

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Quartiles were determined using pre-treatment *T*-Scores on the SCBE General Adaptation Scale. The lowest quartile of children had *T*-Scores between 41 and 55 at pre-treatment.

Table C-30

*Pre- and Post-Treatment Differences on the SCBE for the Highest Quartile in County A (n = 10)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	57.40	3.31	66.20	3.33	97.34***
<b>Success with General Adaptation</b>	60.70	2.50	67.50	2.88	58.76***

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Quartiles were determined using pre-treatment *T*-Scores on the SCBE General Adaptation Scale. The lowest quartile of children had *T*-Scores of 56 and above at pre-treatment.



Table C-31

*Pre- and Post-Treatment Differences on the SCBE for the Lowest Quartile in County B (n = 6)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	37.67	3.50	40.67	9.25	0.72
<b>Success with General Adaptation</b>	41.17	2.23	41.50	5.09	0.26

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
 Quartiles were determined using pre-treatment *T*-Scores on the SCBE General Adaptation Scale. The lowest quartile of children had *T*-Scores of 44 or less at pre-treatment.

Table C-32

*Pre- and Post-Treatment Differences on the SCBE for the Middle Quartiles in County B (n = 13)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	42.85	1.63	44.62	7.69	0.77
<b>Success with General Adaptation</b>	47.23	2.24	46.62	5.92	0.21

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
 Quartiles were determined using pre-treatment *T*-Scores on the SCBE General Adaptation Scale. The lowest quartile of children had *T*-Scores between 45 and 54 at pre-treatment.

Table C-33

*Pre- and Post-Treatment Differences on the SCBE for the Highest Quartile in County B (n = 6)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	58.83	2.32	47.33	3.88	80.15***
<b>Success with General Adaptation</b>	60.33	2.94	51.00	4.29	63.23***

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .  
 Quartiles were determined using pre-treatment *T*-Scores on the SCBE General Adaptation Scale. The lowest quartile of children had *T*-Scores of 55 and above at pre-treatment.

Table C-34

*Pre- and Post-Treatment Differences on the SCBE for Coach #1 (n = 28)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	44.07	7.18	47.36	8.91	20.42***
<b>Success with General Adaptation</b>	44.61	7.16	46.36	9.84	5.92*

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table C-35

*Pre- and Post-Treatment Differences on the SCBE for Coach #2 (n = 26)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	51.85	8.19	53.88	13.85	0.89
<b>Success with General Adaptation</b>	54.23	7.89	56.08	11.85	1.06

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table C-36

*Pre- and Post-Treatment Differences on the SCBE for Coach #3 (n = 13)*

SCBE Subscales/Scales	Pre-Treatment Assessment		Post-Treatment Assessment		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Success with Social Competence</b>	41.46	2.96	47.15	5.61	18.13***
<b>Success with General Adaptation</b>	45.23	4.00	46.62	5.72	1.50

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .